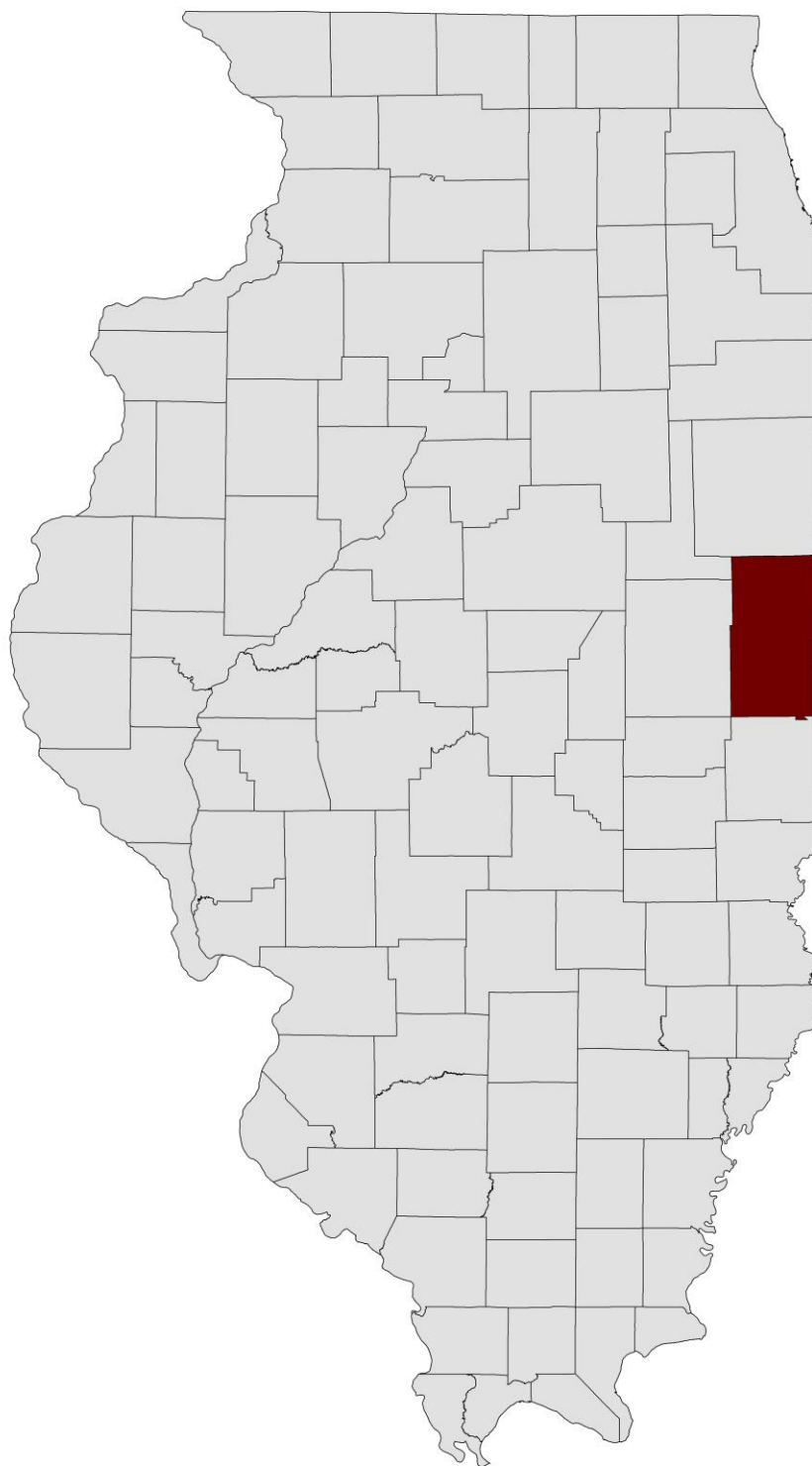


# Multi-Hazard Mitigation Plan

## *Vermilion County, IL*



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**Multi-Hazard Mitigation Plan**  
**Vermilion County, Illinois**

**Adoption Date: -- \_\_\_\_\_ --**

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## **Section 1    Introduction**

Hazard mitigation is any sustained action to reduce or eliminate long-term risk to human life and property from hazards. The Federal Emergency Management Agency (FEMA) makes reducing hazards one of its primary goals; hazard-mitigation planning and the subsequent implementation of mitigation projects, measures, and policies is a primary mechanism in achieving FEMA's goal.

The Multi-Hazard Mitigation Plan (MHMP) is a requirement of the Federal Disaster Mitigation Act of 2000 (DMA 2000). The development of a local government plan is required in order to maintain eligibility for certain federal disaster assistance and hazard mitigation funding programs. In order for the National Flood Insurance Program (NFIP) communities to be eligible for future mitigation funds, they must adopt an MHMP.

In recognition of the importance of planning in mitigation activities, FEMA created Hazus Multi-Hazard (Hazus-MH), a powerful geographic information system (GIS)-based disaster risk assessment tool. This tool enables communities of all sizes to estimate losses from floods, hurricanes, earthquakes, and other natural hazards and to measure the impact of various mitigation practices that might help reduce those losses.

Southern Illinois University Carbondale (SIU) and The Polis Center (Polis) at Indiana University - Purdue University Indianapolis (IUPUI) are assisting Vermilion County in developing their MHMP. SIU and Polis are guiding the planning process, performing the hazard risk assessment, and assisting in identifying sound mitigation activities.

## Section 2 Planning Process

### 2.1 Timeline

The MHMP process is broken into a series of five meetings. These meetings are organized by SIU and hosted by the Vermilion County Emergency Management Agency (EMA). At these five meetings, various tasks are completed by SIU and the Vermilion County multi-hazard mitigation planning team:

**Meeting 1:** The purpose of Meeting 1 is to introduce the MHMP process and organize resources. SIU gathers local resources that contribute to the detailed county risk assessment.

**Meeting 2:** SIU presents the county's historical hazards. Based on this information, the planning team identifies natural hazards to include in the plan, and ranks hazards by potential damages and occurrences. The planning team also provides SIU with disaster scenarios for the county risk assessment.

**Meeting 3:** SIU and Polis present the draft risk assessment, derived from the Hazus-MH and GIS modeling of the identified disasters, to the planning team. The general public is also invited to this meeting through a series of newspaper articles and/or radio spots. At the end of the meeting, SIU encourages the general public to ask questions and provide input to the planning process, fulfilling one of FEMA's requirements for public input.

**Meeting 4:** This meeting consists of a "brainstorming session." The planning team lends local knowledge to identify and prioritize mitigation strategies and projects that can address the threats identified in the risk assessment. FEMA requires the plan to contain mitigation strategies specific to each hazard and for each incorporated area within the county.

**Meeting 5:** The planning team reviews the draft plan, proposes revisions, and accepts the plan after SIU incorporates the necessary changes. Subsequently, SIU will forward the county MHMP to the mitigation staff at the Illinois Emergency Management Agency (IEMA) for review prior to submitting it to FEMA.

### 2.2 Planning Team Information

Ted Fisher, the county EMA coordinator, heads the planning team. The planning team includes representatives from various county departments, municipalities, and public and private utilities. Table 2-1 identifies the planning team individuals and the organizations they represent.

**Table 2-1:** Mitigation Planning Team Members

Name	Title	Organization	Jurisdiction
Ted Fisher	Director	Vermilion County EMA	Vermilion County
Barb Prunkard	Tech	Vermilion County EMA	Vermilion County
Dennis Wood	Captain	Sheriff's Department	Vermilion County
Gary Weinard	County Board Chairman	Vermilion County	Vermilion County
James McMahon	County Board Chairman	Vermilion County	Vermilion County
Jamie Davis	Emergency Services Coordinator	American Red Cross	Vermilion County
Melissa Rome	Emergency Planning and Response Coordinator	Vermilion County Health Department	Vermilion County

Name	Title	Organization	Jurisdiction
Michele Rice	Office Manager	Vermilion County EMA	Vermilion County
Shirley Hicks	Administrator	Vermilion County Health Department	Vermilion County
Terrie Sherer	Administrative Assistant	Vermilion County	Vermilion County
Bradley Prunkard	Board Member	Village of Sidell	Sidell
Terry Prillaman	Mayor	Village of Rossville	Rossville
Eric Haase	Chief of Police	Ridge Farm Police Dept.	Ridge Farm
John Goodwin	Trustee	Village of Ridge Farm	Ridge Farm
Sharon Simmons	President	Village of Ridge Farm	Ridge Farm
Bob Jennings	President	Village of Oakwood	Oakwood
Terry Hume	Chief	Danville EMS	Oakwood
Carroll Slade	Mayor	Muncie	Muncie
Thomas Gooch	Mayor	Village of Indianola	Indianola
Bill Crusinberry	Mayor	City of Hoopeston	Hoopeston
Brad Hardcastle	EMA	City of Hoopeston	Hoopeston
Scott Strawser	EMA	City of Hoopeston	Hoopeston
Dennis Lucas	Mayor	City of Georgetown	Georgetown
Dorothy Engleman	Clerk	Village of Fithian	Fithian
Duane Fidler	Coordinator	Edgar County ESDA	Edgar County
Scott Eisenhower	Mayor	City of Danville	Danville
Jill Anderson	Emergency Manager	Danville VA Medical Center	Danville
Tom Pruitt	Assistant Fire Chief	Danville Fire Dept.	Danville
Jim Robinson	Mayor	Village of Catlin	Catlin
Greg Lewis	Mayor	Village of Bismarck	Bismarck

The DMA 2000 planning regulations require that planning team members from each jurisdiction actively participate in the MHMP process. The planning team was actively involved on the following components:

- Attending the MHMP meetings
- Providing available assessment and parcel data and historical hazard information
- Reviewing and providing comments on the draft plans
- Coordinating and participating in the public input process
- Coordinating the formal adoption of the plan by the county

A MHMP kickoff meeting was held in Danville on 07/21/2012. Representatives from SIU explained the rationale behind the MHMP program and answered questions from the participants. SIU representatives provided an overview of Hazus-MH, described the timeline and the process of the mitigation planning project, and presented Vermilion County with a Memorandum of Understanding (MOU) for sharing data and information.

The planning team met on 07/21/2012, 10/23/2012, 04/30/2013, 07/31/2013, 01/29/2014 and 03/18/2014. Each meeting was approximately two hours in length. The Vermilion County EMA held separate meetings to discuss the plan and its progress on 11/7/2013 and 03/18/2014. Appendix A includes the minutes for each meeting. During these meetings, the planning team successfully identified critical facilities, reviewed hazard data and maps, identified and assessed the effectiveness of existing mitigation measures, established mitigation projects, and assisted with preparation of the public participation information.

## 2.3 Public Involvement

The Vermilion County EMA solicited public input during the planning process, and a public meeting (Meeting 3) was held on 04/30/2013 to review the county's risk assessment. Appendix A contains the minutes from the public meeting. Appendix B contains press releases and/or articles sent to local newspapers throughout the public input process.

## 2.4 Neighboring Community Involvement

The planning team invited participation from various representatives of county government, local city and town governments, community groups, local businesses, and universities. The planning team also invited participation from adjacent counties to obtain their involvement in the planning process. Table 2-2 summarizes details of neighboring stakeholders' involvement.

**Table 2-2: Neighboring Community Participation**

Person Participating	Neighboring Jurisdiction	Title/Organization	Participation Description
Duane Fidler	Edgar County	Coordinator, Edgar County ESDA	Reviewed plan; offered comments

## 2.5 Review of Technical and Fiscal Resources

The planning team identified representatives from key agencies to assist in the planning process. SIU obtained technical data, reports, and studies from these agencies. Table 2-3 summarizes these organizations and their contributions.

**Table 2-3: Key Agency Resources Provided**

Agency Name	Resources Provided
Illinois Environmental Protection Agency	Illinois 2008 Section 303(d) Listed Waters and watershed maps
U.S. Census	County Profile Information, e.g., Population and Physical Characteristics
Department of Commerce and Economic Opportunity	Community Profiles
Illinois Department of Employment Security	Industrial Employment by Sector
NOAA National Climatic Data Center	Climate Data
Illinois Emergency Management Agency	2010 Illinois Natural Hazard Mitigation Plan
Illinois Water Survey (State Climatologist Office)	Climate Data
Headwaters Economics & The Bureau of Land Management	A Socioeconomic Profile – Vermilion County, IL

## 2.6 Review of Existing Plans

Vermilion County and its local communities utilized a variety of planning documents to direct community development. These documents include land use plans, comprehensive plans, emergency response plans, municipal ordinances, and building codes. The planning process incorporated the existing natural hazard mitigation elements from previous planning efforts. Table 2-4 lists the plans, studies, reports, and ordinances used to develop the plan.

**Table 2-4: Planning Documents Used for MHMP Planning Processes**

Author(s)	Year	Title	Description	Where Used
FEMA	2011	Vermilion County Flood Insurance Study	Describes the NFIP program, which communities participate; provide flood maps.	Sections 4 and 5
State of Illinois Emergency Management Agency	2010	2010 Illinois Natural Hazard Mitigation Plan	This plan provides an overview of the process for identifying and mitigating natural hazards in Illinois as required by the	Guidance on hazards and mitigation measures and background on

			Disaster Mitigation Act of 2000.	historical disasters in Illinois.
Vermilion County	2013	Village Maps	Aerial Photographs and Parcel Information For Vermilion County.	Section 4
Vermilion County	2011	Vermilion County Severe Weather Operations Plan	The purpose of the Severe Weather Plan is to provide an effective and coordinated response on the part of County government and support organizations in the event of a severe weather event.	Sections 3, 4, and 5
Vermilion County	2011	Vermilion County Emergency Operation Plan	The plan describes how Vermilion County and the participating entities will handle emergency situations and disasters within their boundaries.	Sections 3, 4, and 5

## 2.7 Jurisdiction Participation information

SIU intends this plan to meet the requirements of the DMA 2000 and for each incorporated jurisdiction to adopt it. Table 2-5 lists the incorporated communities included in this multi-jurisdictional plan.

**Table 2-5:** Participating Jurisdictions

<b>Jurisdiction Name</b>
Vermilion County
Allerton
Alvin
Belgium
Bismarck
Catlin
Danville
Fairmount
Fithian
Georgetown
Henning
Hoopeston
Indianola
Muncie
Oakwood
Potomac
Rankin
Ridge Farm
Rossville
Sidell
Tilton
Westville

## 2.8 Adoption by Local Governing Body

SIU delivered the draft plan to the Vermilion County multi-hazard mitigation planning team for review on March 4, 2014. SIU subsequently incorporated any comments from the planning team into the plan. Upon FEMA approval, the planning team will present and recommend the plan to the County Commissioners for adoption, who adopted it on **<date adopted>**. The planning team will work with the county and its jurisdictions to ensure all parties adopt the plan. Appendix C includes resolution adoptions of this plan.

## 2.9 Jurisdiction Participation

DMA 2000 regulations require that each jurisdiction participate in the planning process. Table 2-6 lists each jurisdiction and describes its participation in the construction of this plan.

**Table 2-6:** Description of Participation for Each Jurisdiction

Jurisdiction Name	Participating Member	Participation Description
Vermilion County	Ted Fisher	Reviewed plan; offered comments
Allerton	Sharon Barkley	Reviewed plan; offered comments
Alvin	Jean P. Lete	Reviewed plan; offered comments
Belgium	Mitchell Valangeon	Reviewed plan; offered comments
Bismarck	Greg Lewis	Reviewed plan; offered comments
Catlin	Jim Roberts	Reviewed plan; offered comments
Danville	Scott Eisenhower	Reviewed plan; offered comments
Fairmount	David Ferber	Reviewed plan; offered comments
Fithian	Dorothy Engleman	Reviewed plan; offered comments
Georgetown	Dennis R. Lucas	Reviewed plan; offered comments
Henning	Jerry Paxton	Reviewed plan; offered comments
Hoopeston	Bill Crusinberry	Reviewed plan; offered comments
Indianola	Thomas Gooch	Reviewed plan; offered comments
Muncie	Helen Welch	Reviewed plan; offered comments
Oakwood	Bob Jennings	Reviewed plan; offered comments
Potomac	Shelly Cessna	Reviewed plan; offered comments
Rankin	Aaron Warren	Reviewed plan; offered comments
Ridge Farm	Sharon A. Simmons	Reviewed plan; offered comments
Rossville	Terry Prillman	Reviewed plan; offered comments
Sidell	Bradley Prunkard	Reviewed plan; offered comments
Tilton	David Phillips	Reviewed plan; offered comments
Westville	Mike Weese	Reviewed plan; offered comments

All members of the planning team actively participated in the MHMP meetings, provided available GIS data and historical hazard information, reviewed and provided comments on the draft plans, coordinated and participated in the public input process, and coordinated the county's formal adoption of the plan.

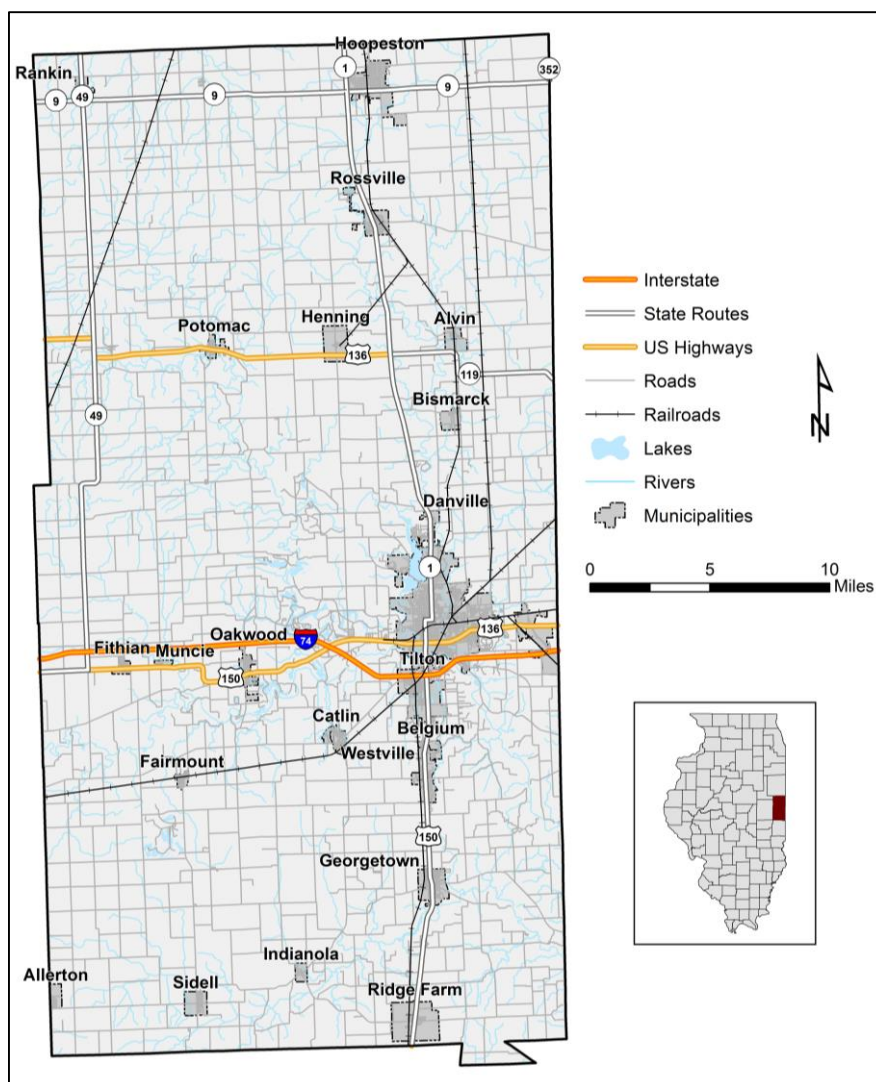
## Section 3 County Profile

### 3.1 County Background

Figure 3-1 depicts Vermilion County's geographical location. Vermilion County is located on the east-central boundary of Illinois bordered on the north by Iroquois County, on the west by Ford and Champaign Counties, on the south by Edgar County, and on the east by Benton, Warren and Vermillion Counties, Indiana. The County is located about 120 miles south of Chicago and 100 miles east of Springfield, Illinois.

Vermilion County is named after the Vermilion River which runs through it. Vermilion County's current county seat is Danville. The area within the borders of Vermilion County was originally owned by France, from 1682 to 1763. After the French and Indian War, Great Britain owned the area. After the American Revolution, the area became a county of Virginia. Vermilion County has since been part of the Indiana Territory, the Illinois Territory, and finally the state of Illinois. The county was officially created on January 18, 1826.

**Figure 3-1:** Vermilion County's Geographical Location

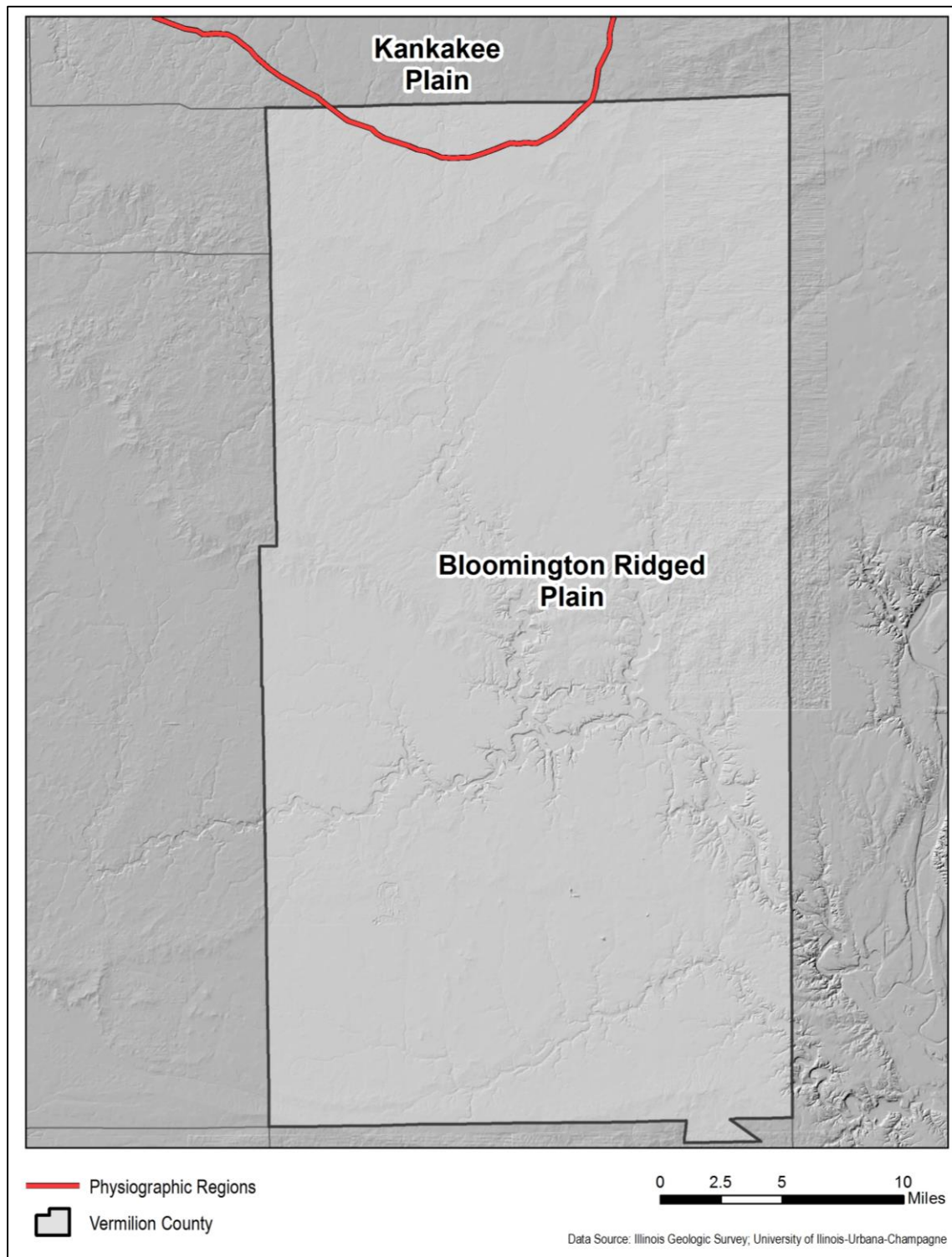




### 3.2 Topography

Vermilion County is situated in the Kankakee Plain and Bloomington Ridged Plain physiographic regions. Figure 3-2 depicts the physiographic regions of Vermilion County.

**Figure 3-2:** Physiographic Divisions of Vermilion County and Surrounding Region





### 3.3 Climate

According to the National Weather Service, the climate in Vermilion County is humid continental with hot summers and cold winters. Average annual temperature is 51.5 °F. The highest temperature on record is 112 °F and the lowest is -26 °F. Average annual precipitation is 40.04 inches, with most precipitation occurring in spring and summer months. Average annual snowfall is approximately 17.17 inches. Average annual humidity is 75.11%. Average annual wind speed is 16.53 mph.

### 3.4 Demographics

Vermilion County's population is 81,625, a decrease of 2.7% from 2000 to 2010 (U.S. Census Bureau, 2010 Census). The population is spread through 19 townships: Carroll; Middlefork; Danville; Newell; Elwood; Pilot; Georgetown; Ross; Blount; Butler; Catlin; Grant; Jamaica; Love; McKendree; Oakwood; Sidell; South Ross; and Vance. Vermilion County has 21 incorporated jurisdictions, including: Danville; Hoopeston; Georgetown; Allerton; Sidell; Alvin; Bismarck; Rossville; Tilton; Belgium; Westville; Ridge Farm; Oakwood; Muncie; Fithian; Potomac; Henning; Fairmount; Catlin; Indianola; and Rankin. The largest incorporated jurisdiction in Vermilion County is Danville, which has a population of approximately 33,027 (U.S. Census Bureau, 2010 Census). Table 3-1 includes the breakdown of population by township.

**Table 3-1: Population by Township**

Township	2010 Population	Percent of County
Blount	3,428	4.2%
Butler	992	1.2%
Carroll	612	0.7%
Catlin	3,300	4.0%
Danville	32,113	39.3%
Elwood	1,647	2.0%
Georgetown	7,901	9.7%
Grant	6,028	7.4%
Jamaica	202	0.2%
Love	257	0.3%
McKendree	807	1.0%
Middlefork	1,458	1.8%
Newell	13,969	17.1%
Oakwood	3,507	4.3%
Pilot	587	0.7%
Ross	1,617	2.0%
Sidell	1,073	1.3%
South Ross	1,070	1.3%
Vance	1,057	1.3%

### 3.5 Economy

The American Community Survey (2008-2012) reported that the civilian labor force comprised 58.9% of the workforce in Vermilion County. Table 3-2 includes the employment distribution by industrial sector. Manufacturing, retail trade, and education represent the largest sectors, employing 52.7% of the workforce. The annual per capita income in Vermilion County is \$21,169 (American Community Survey, 2008-2012).

**Table 3-2: Industrial Employment Sector**

<b>Industrial Sector</b>	<b>2008-2012 County Distribution</b>
Agriculture, forestry, fishing, hunting, and mining	2.4%
Construction	6.1%
Manufacturing	17.4%
Wholesale trade	3.8%
Retail trade	12.9%
Transportation, warehousing and utilities	5.6%
Information	1.5%
Finance, insurance, real estate, and rental/leasing	4.8%
Professional, technical services	7.4%
Educational, health, and social services	22.4%
Arts, entertainment, recreation	6.3%
Other services	4.7%
Public administration	4.7%

### 3.6 Industry

The Vermilion County industry is mainly comprised of healthcare, logistics, manufacturing, and technical services. Vermilion County's largest employers is the Veteran's Affairs Illiana Health Care System with approximately 1,933 employees. Table 3-3 the top ten major employers in Vermilion County.

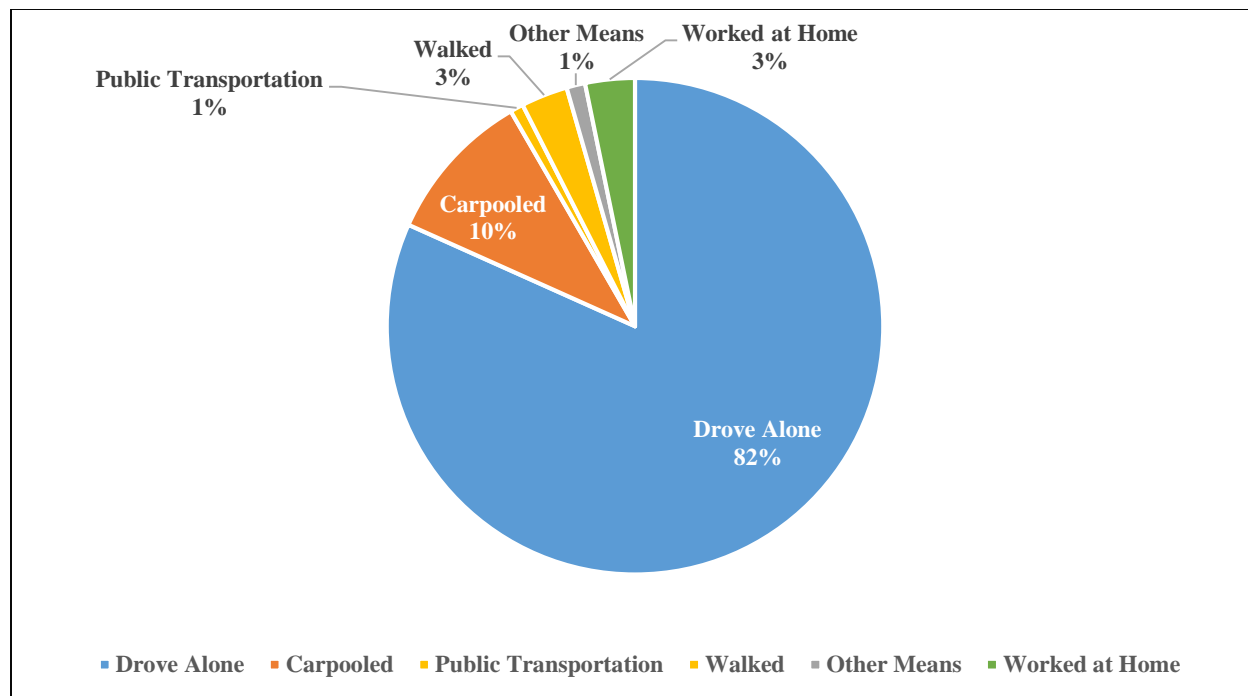
**Table 3-3: Vermilion County's Major Employers\***

<b>Employer</b>	<b>Industry</b>	<b>Approximate Number of Employees</b>
Vermilion County Public Schools and District 118	Education	1,933
Veteran's Affairs Illiana Health Care System	Health Care	1,305
ThyssenKrupp	Manufacturing	846
McLane Midwest Company	Logistics	727
Genpact	Financial	687
Vermilion County Government	Government	586
Presence United Samaritans Medical Center	Health Care	501
Quaker Oats, Co.	Food/Beverage	484
KIK Custom Products	Manufacturing	483
Danville Metal Stamping	Manufacturing	420

\*Source: [Vermilion Advantage](#)

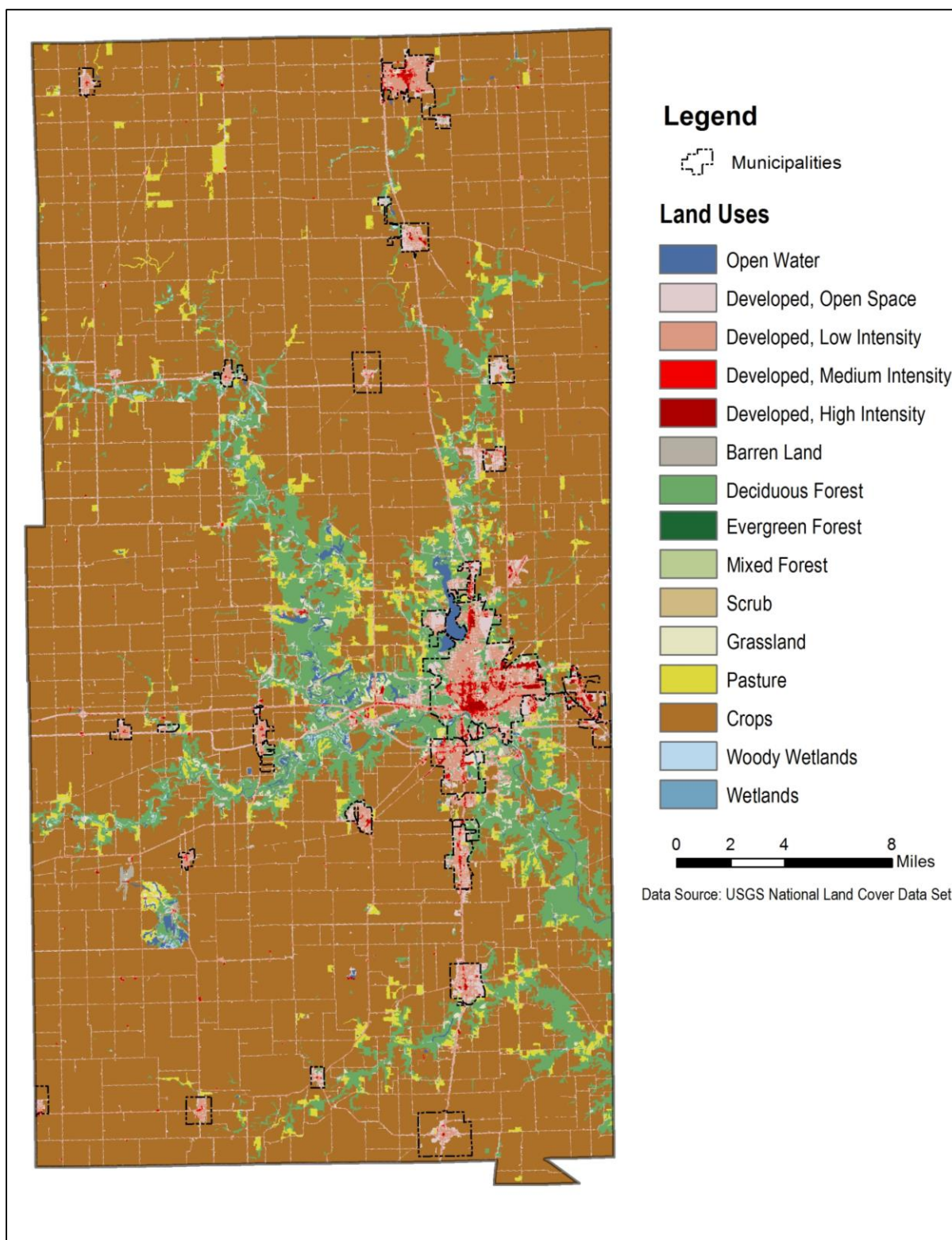
### 3.7 Commuter Patterns

According to the American Community Survey (2008-2012), approximately 58.9% of Vermilion County's population is in the work force. The average travel time from home to work is 20.0 minutes. Figure 3-3 depicts the commuting patterns for Vermilion County's labor force.

**Figure 3-3: Commuter Patterns for Vermilion County**

### 3.8 Land Use and Development Trends

The predominant land cover in Vermilion County is crops, followed by deciduous forest and low intensity urban development (USGS National Landcover Data Set, 2001). Figure 3-4 depicts the land use within Vermilion County. Agricultural lands are found almost everywhere in Vermilion County except directly along the Vermilion River. Deciduous forest cover is primarily found along the Vermilion River and its forks. Significant urban developments include Danville and Hoopeston. Natural parks managed by the Vermilion County Conservation District include: Forest Glen Preserve; Heron County Park; Kennekuk Cove County Park; and Lake Vermilion County Park. Natural parks managed by the Illinois Department of Natural Resources include: Kickapoo State Recreation Area; Harry “Babe” Woodyard State Natural Area; and Middle Fork State Fish and Wildlife Area. Vermilion County has 12 structures in the National Register of Historic Places, including the Fithian House at which Abraham Lincoln gave a campaign speech during his first candidacy.

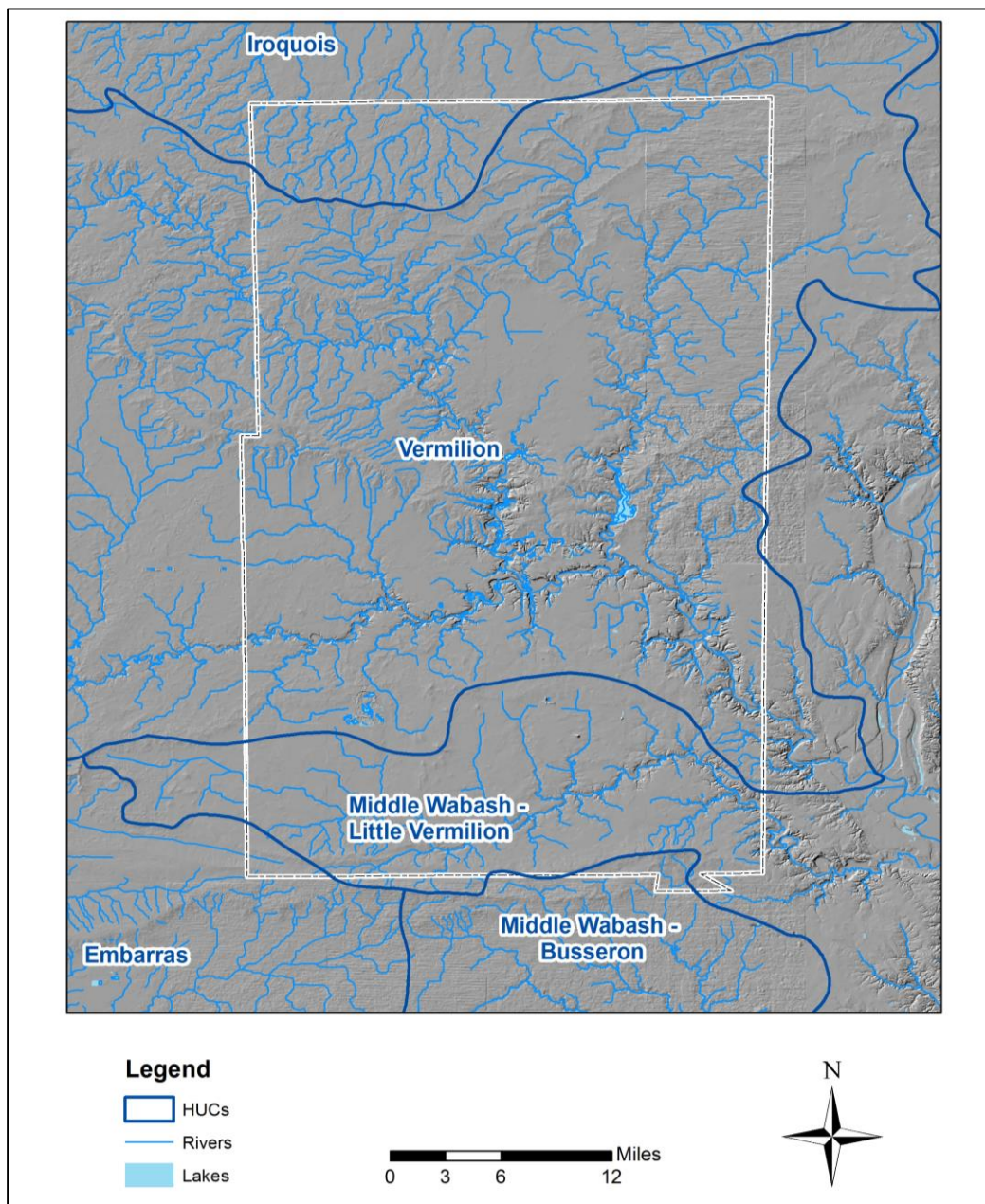
**Figure 3-4: Land Use in Vermilion County**



### 3.9 Major Lakes, Rivers and Watersheds

Vermilion County has several water bodies, with Lake Vermilion being the most significant. The only significant river in Vermilion County is Vermilion River and its forks. Most of Vermilion County is drained by the Vermilion River and its tributaries including the North Fork, Middle Fork, and Salt Fork Rivers. The Little Vermilion drains the southern part of the County. These watercourses drain primarily to the south and east, toward the Wabash River. According to the USGS, Vermilion County consists of five drainage basins: Iroquois; Vermilion; Middle Wabash-Little Vermilion; Middle Wabash-Busseron; and Embarras. Figure 3-5 depicts the hydrologic units within Vermilion County.

**Figure 3-5: Major Lakes and Rivers in Vermilion County**



## Section 4 Risk Assessment

The goal of mitigation is to reduce future hazard impacts including loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation requires rigorous risk assessment. A risk assessment involves quantifying the potential loss resulting from a disaster by assessing the vulnerability of buildings, infrastructure, and people. This assessment identifies the characteristics and potential consequences of a disaster, how much the disaster could affect the community, and the impact on community assets. A risk assessment consists of three components—hazard identification, vulnerability analysis, and risk analysis.

### 4.1 Hazard Identification

#### 4.1.1 Existing Plans

The plans identified in Table 2-4 did not contain a detailed risk analysis specifically for Vermilion County. SIU and the planning team reviewed these local planning documents to identify historical hazards and help identify risk.

#### 4.1.2 National Hazard Records

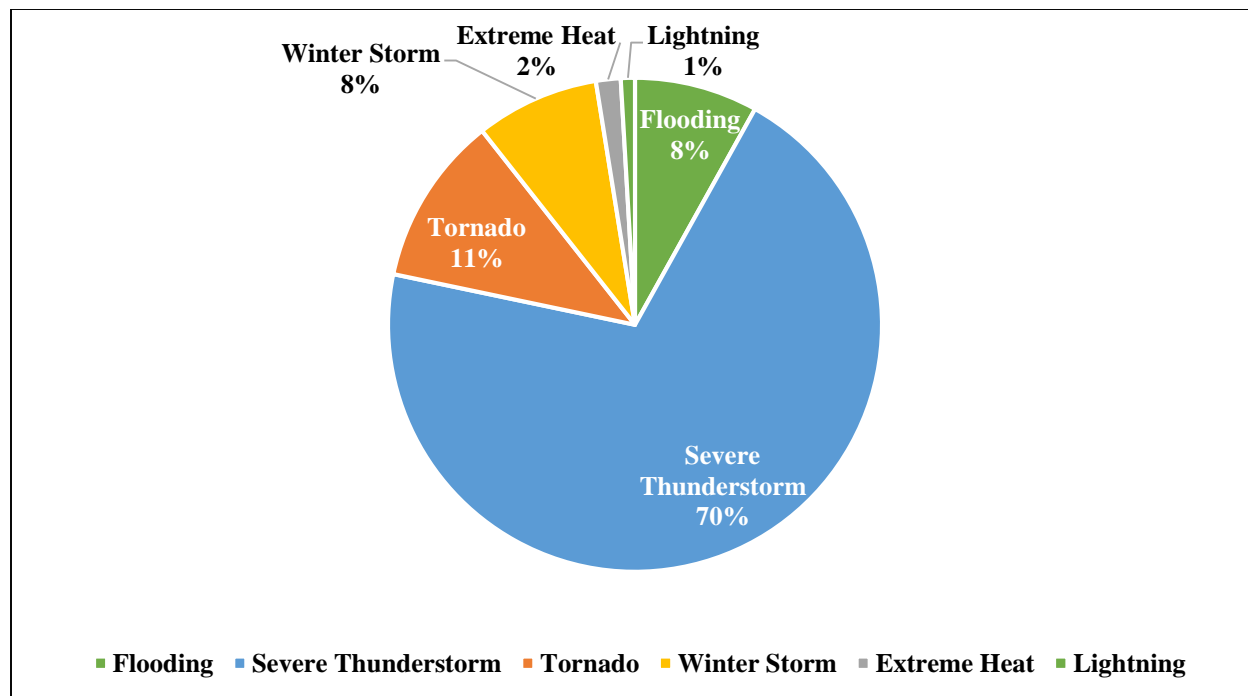
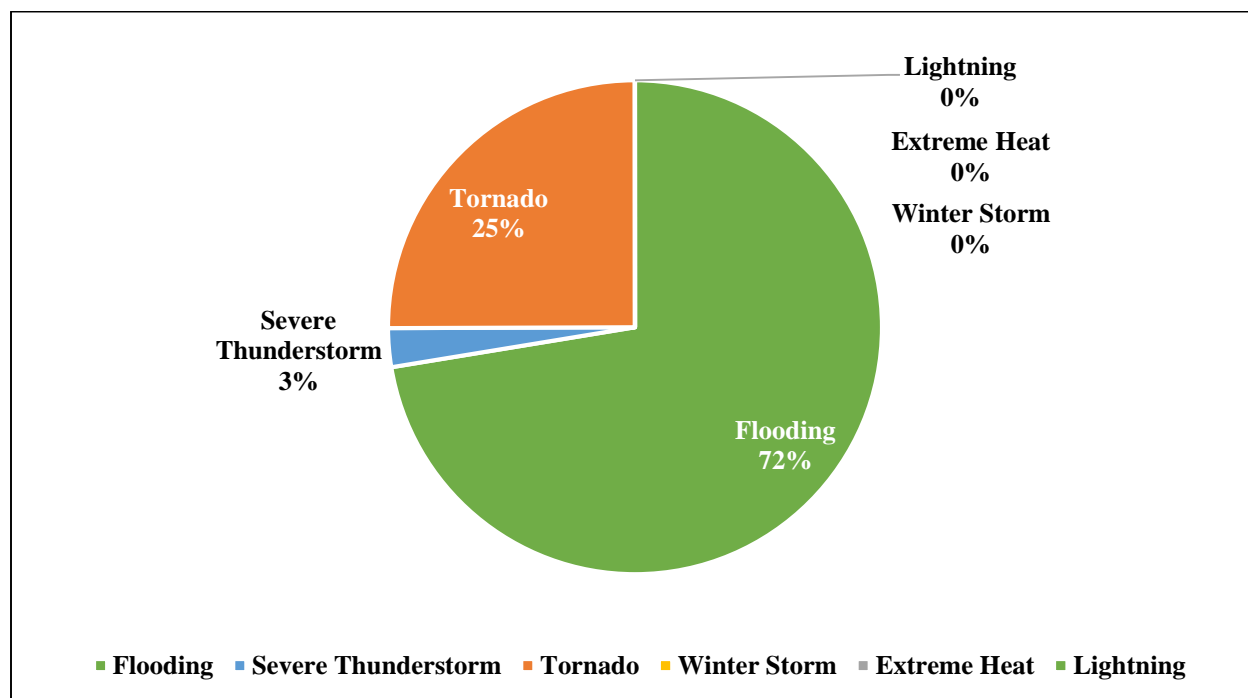
##### 4.1.2.1 National Climatic Data Center (NCDC) Records

To assist the planning team, SIU compiled historical storm event data from the National Climatic Data Center (NCDC). NCDC records are estimates of damage reported to the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses.

The NCDC data included 431 reported events in Vermilion County from 1955-Feb 2014 (the most updated information as of the date of this plan). The following hazard-profile sections each include a summary table of events related to each hazard type. Table 4-1 summarizes meteorological hazards reported by NCDC for Vermilion County. Figures 4-1 and 4-2 summarize the relative frequency of NCDC-reported meteorological hazards and the percent of total damage associated with each hazard for Vermilion County. Full details of individual hazard events are on the [NCDC website](#). In addition to NCDC data, SIU mapped Storm Prediction Center (SPC) data associated with tornadoes, strong winds, and hail using SPC-recorded latitudes and longitudes. Appendix D includes a map of these events.

**Table 4-1:** Summary of Meteorological Hazards Reported by NCDC for Vermilion County

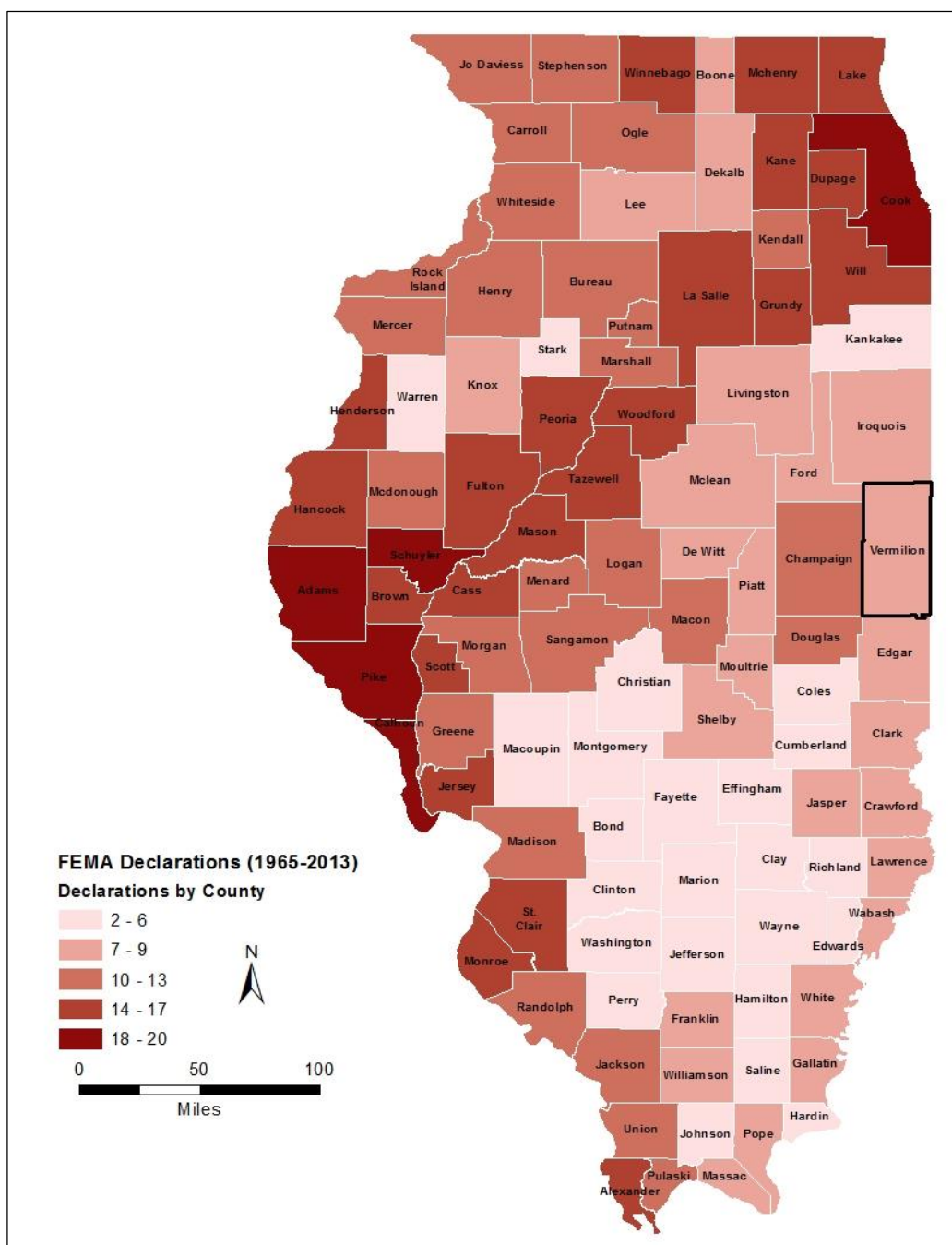
Hazards	Time Period		Number of Events	Property Damage (Millions of Dollars)	Deaths	Injuries
	Start	End				
Flooding	1994	2014	35	\$100	2	1
Severe Thunderstorm	1955	2014	304	\$3.5	1	9
Tornado	1953	2014	48	\$34.6	1	22
Winter Storm	1995	2014	35	\$0	10	32
Extreme Heat	1997	2014	7	\$0	10	0
Lightning	1994	2014	4	\$0.006	1	0

**Figure 4-1:** Number of Meteorological Events Reported by NCDC for Vermilion County**Figure 4-2:** Percent Total Damage by Meteorological Hazard Reported by NCDC for Vermilion County

#### 4.1.2.2 FEMA Disaster Information

Since 1957, FEMA has declared 53 major disasters and 7 emergencies for the state of Illinois. Emergency declarations allow states to access FEMA funds for Public Assistance (PA); disaster declarations allow for even more PA funding, including Individual Assistance (IA) and the Hazard Mitigation Grant Program (HMGP). Vermilion County has received federal aid for eight declared disasters since 1965. Figure 4-3 depicts the disasters and emergencies that have been declared for the state of Illinois and Vermilion County since 1965. Table 4-2 lists specific information for each disaster declaration in Vermilion County.

**Figure 4-3:** FEMA-Declared Emergencies and Disasters in Illinois and Vermilion County (1965-2013)





**Table 4-2:** Detail of FEMA-Declared Emergencies and Disasters in Vermilion County (1965-present)

Declaration Number	Date of Declaration	Description
242	06/15/1968	Flooding; Severe Storms; Tornado
427	04/11/1974	Tornado
860	03/06/1990	Freezing Rains; Ice Storm; Severe Winds
1025	04/26/1994	Flash Floods; Thunderstorms; Torrential Rains
1110	04/23/1996	Severe Storms; Tornado
3134	01/08/1999	Snow Emergency
1416	05/21/2002	Flooding; Excessive Rainfall; Severe Storms; Tornado
3230	09/07/2005	Hurricane Sheltering

### 4.1.3 Hazard Ranking Methodology

Based on planning team input, national datasets, and existing plans, Table 4-3 lists the hazards Vermilion County will address in the MHMP. In addition, these hazards ranked the highest based on the Risk Priority Index (RPI) discussed in section 4.1.4.

**Table 4-3:** Planning Team Hazard List

Hazard
Tornado
Winter Storms
Severe Thunderstorms
Extreme Heat and Drought
Flooding
Fire
Hazmat
Earthquakes
Subsidence

### 4.1.4 Calculating the Risk Priority Index

The RPI quantifies risk as the product of hazard probability and magnitude so planning team members can prioritize mitigation strategies for high-risk-priority hazards. Planning team members use historical hazard data to determine probability and knowledge of local conditions to determine the possible severity of a hazard. Tables 4-4 and 4-5 display the criteria the planning team used to quantify hazard probability and magnitude.

**Table 4-4:** Future Occurrence Ranking

Probability	Characteristics
4 - Highly Likely	Event is probable within the calendar year. Event has up to 1 in 1 year chance of occurring. (1/1=100%) History of events is greater than 33% likely per year.
3 - Likely	Event is probable within the next three years. Event has up to 1 in 3 years chance of occurring. (1/3=33%)

Probability	Characteristics
	History of events is greater than 20% but less than or equal to 33% likely per year.
2 - Possible	Event is probable within the next five years. Event has up to 1 in 5 years chance of occurring. (1/5=20%) History of events is greater than 10% but less than or equal to 20% likely per year.
1 - Unlikely	Event is possible within the next ten years. Event has up to 1 in 10 years chance of occurring. (1/10=10%) History of events is less than or equal to 10% likely per year.

**Table 4-5: Hazard Magnitude**

Magnitude/Severity	Characteristics
8 - Catastrophic	Multiple deaths. Complete shutdown of facilities for 30 or more days. More than 50% of property is severely damaged.
4 - Critical	Injuries and/or illnesses result in permanent disability. Complete shutdown of critical facilities for at least 14 days. More than 25% of property is severely damaged.
2 - Limited	Injuries and/or illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than seven days. More than 10% of property is severely damaged.
1 - Negligible	Injuries and/or illnesses are treatable with first aid. Minor quality of life lost. Shutdown of critical facilities and services for 24 hours or less. Less than 10% of property is severely damaged.

The product of hazard probability and magnitude is the RPI. The planning team members ranked specified hazards based on the RPI, with larger numbers corresponding to greater risk. Table 4-6 identifies the RPI and ranking for each hazard specified by the planning team.

**Table 4-6: Vermilion County Hazard Risk Priority Index and Ranking**

Hazard	Probability	Magnitude/Severity	Risk Priority Index	Rank
Flooding	4	4	16	1
Tornado	3	4	12	2
Winter Storms	3	4	12	3
Thunderstorms	4	2	8	4
Extreme Drought or Heat	3	2	6	5
Hazardous Materials Release	1	2	2	6
Fire	2	1	2	7
Subsidence	1	1	1	8
Earthquakes	1	1	1	9

#### 4.1.5 Jurisdictional Hazard Ranking

Each jurisdiction created its own RPI because hazard susceptibility may differ by jurisdiction. During the five-year review of the plan, the planning team will update this table to ensure these jurisdictional rankings accurately reflect each community's assessment of these hazards. Table 4-7 lists the jurisdictions and their

respective hazard rankings (Ranking 1 being the highest concern). The jurisdictions made these rankings at Meeting 2, and community perceptions may change throughout the planning process.

**Table 4-7: Hazard Ranking by Jurisdiction**

Jurisdiction	Hazard								
	Tornado	HAZMAT	Earthquake	T-storms	Flooding	Drought/ Heat	Winter Storms	Fire	Subsidence
Danville	3	4	7	1	5	2	6	-	-
Hoopeston	2	6	9	4	1	5	3	7	8
Georgetown	-	-	5	1	3	2	-	4	-
Allerton	2	6	9	4	1	5	3	7	8
Sidell	2	6	9	4	1	5	3	7	8
Alvin	2	6	9	4	1	5	3	7	8
Bismarck	2	6	9	4	1	5	3	7	8
Rossville	1	5	6	2	3	-	4	-	-
Tilton	2	6	9	4	1	5	3	7	8
Belgium	2	6	9	4	1	5	3	7	8
Westville	2	6	9	4	1	5	3	7	8
Ridge Farm	2	6	9	4	1	5	3	7	8
Oakwood	-	-	-	1	3	2	-	4	-
Muncie	2	6	9	4	1	5	3	7	8
Fithian	2	6	9	4	1	5	3	7	8
Potomac	2	6	9	4	1	5	3	7	8
Henning	2	6	9	4	1	5	3	7	8
Fairmount	2	6	9	4	1	5	3	7	8
Catlin	2	6	9	4	1	5	3	7	8
Indianola	-	-	-	1	-	2	-	3	-
Rankin	2	6	9	4	1	5	3	7	8

#### 4.1.6 GIS and Hazus-MH

The third step in this risk assessment is the risk analysis, which quantifies the risk to the population, infrastructure, and economy of the community. SIU quantified the hazards using GIS analyses and Hazus-MH where possible. This process reflects a Level 2 Hazus-MH analysis. A level 2 Hazus-MH analysis

involves substituting selected Hazus-MH default data with local data and improving the accuracy of model predictions.

Depending upon the analysis options and the quality of data the user inputs, Hazus-MH generates a combination of site-specific and aggregated loss estimates. Hazus-MH is not intended as a substitute for detailed engineering studies; it is intended to serve as a planning aid for communities interested in assessing their risk to flood-, earthquake-, and hurricane-related hazards. This plan does not fully document the processes and procedures completed in its development, but this documentation is available upon request.

Table 4-8 indicates the analysis type (i.e. GIS, Hazus-MH, or historical records) used for each hazard assessment.

**Table 4-8: Risk Assessment Tool Used for Each Hazard**

<b>Hazard</b>	<b>Risk Assessment Tool(s)</b>
Tornado	GIS-based
Winter Storms	Historical Records
Severe Thunderstorm	Historical Records
Extreme Heat and Drought	Historical Records
Flooding	Hazus-MH
Fire	Historical Records
Hazmat	GIS-based
Earthquakes	Hazus-MH
Subsidence	Historical Records

## 4.2 Vulnerability Assessment

### 4.2.1 Asset Inventory

#### 4.2.1.1 Processes and Sources for Identifying Assets

SIU first updated the Hazus-MH default critical facilities data using state resources. At meeting one, the planning team used their resources to further update this information. SIU and the county used local GIS data to verify the locations of all critical facilities (i.e., county-provided aerial photographs with parcel information). SIU GIS analysts incorporated these updates and corrections to the Hazus-MH data tables prior to performing the risk assessment. The updated Hazus-MH inventory contributed to a Level 2 analysis, which improved the accuracy of the risk assessment.

Updates to the default Hazus-MH data include:

- Updating the Hazus-MH defaults, critical facilities, and essential facilities based on the most recent available data sources.
- Reviewing, revising, and verifying locations of critical and essential point facilities with local input and cross referenced with aerial photographs and parcel information obtained from the County.
- Applying the essential facility updates (schools, medical care facilities, fire stations, police stations, and EOCs) to the Hazus-MH model data.
- Updating Hazus-MH reports of essential facility losses.

SIU made the following assumptions during analysis:

- SIU used Hazus-MH aggregate data to model the building exposure for all earthquake analysis. SIU assumes that the aggregate data is an accurate representation of Vermilion County.
- SIU restricts the analysis to the county boundaries. Events that occur near the county boundaries do not contain damage assessments from adjacent counties.

#### 4.2.1.2 Essential Facilities List

Table 4-9 identifies the number of essential facilities identified in Vermilion County. Essential facilities are a subset of critical facilities. Appendices E and F include a list and map of all critical facilities in Vermilion County.

**Table 4-9: Essential Facilities**

Facility	Number of Facilities
Care Facilities	3
Emergency Operations Centers	4
Fire Stations	30
Police Stations	22
Schools	52

#### 4.2.1.3 Facility Replacement Costs

Table 4-10 identifies facility replacement costs and total building exposure. Vermilion County provided local assessment data for updates to replacement costs. Table 4-10 also includes the estimated number of buildings within each occupancy class.

**Table 4-10: Building Exposure**

General Occupancy	Estimated Total Buildings	Total Building Exposure (x \$1000)
Residential	24,581	2,905,477
Agriculture	1,978	198,455
Commercial	1,672	204,794
Education	52	275,868
Government	47	86,127
Religion	-	-
Industrial	117	15,913
<b>Total:</b>	<b>28,447</b>	<b>\$3,686,634</b>

### 4.3 Future Development

As the county's population grows, the residential and urban areas will extend further into the county, placing more pressure on existing transportation and utility infrastructure while increasing the rate of farmland conversion. Vermilion County will address specific mitigation strategies in Section 5 to alleviate such issues.

Vermilion County is vulnerable to a variety of natural hazards, therefore the county government—in partnership with state government—must make a commitment to hazard mitigation. Vermilion County is committed to ensuring that county elected and appointed officials become informed leaders regarding community hazards so that they are better prepared to set and direct policies for emergency management in mitigation, preparedness, response, and recovery.

## 4.4 Hazard Profiles

### 4.4.1 Tornado Hazard

#### *Hazard Definition*

Tornadoes are violently rotating columns of air extending from thunderstorms to the ground. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently rotating column of air can reach the ground quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are a significant risk to Illinois and its citizens. Tornadoes can occur at any time on any day. The unpredictability of tornadoes makes them one of Illinois' most dangerous hazards. Tornado winds are violently destructive in developed and populated areas. Current estimates place maximum wind velocity at about 300 miles per hour, but higher values can occur. A wind velocity of 200 miles per hour results in a pressure of 102.4 pounds per square foot—a load that exceeds the tolerance limits of most buildings. Thus, it is easy to understand why tornadoes can devastate the communities they hit.

Tornadoes are classified according to the Enhanced Fujita tornado intensity scale. The Enhanced Fujita scale ranges from intensity EF0, with effective wind speeds of 40 to 70 miles per hour, to EF5 tornadoes, with effective wind speeds of over 260 miles per hour. Table 4-11 outlines the Enhanced Fujita intensity scale.

**Table 4-11: Enhanced Fujita Tornado Rating**

Enhanced Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
<b>0</b> <i>Gale</i>	40-72 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, signboards damaged, shallow-rooted trees blown over.
<b>1</b> <i>Moderate</i>	73-112 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
<b>2</b> <i>Significant</i>	113-157 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
<b>3</b> <i>Severe</i>	158-206 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
<b>4</b> <i>Devastating</i>	207-260 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
<b>5</b> <i>Incredible</i>	261-318 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

#### *Previous Occurrences of Tornadoes*

The NCDC database reported 48 tornadoes/funnel clouds in Vermilion County since 1953. The most recent recorded event occurred on May 6<sup>th</sup> 2012, when a tornado touched down about 3.2 miles west-southwest of Hoopeston at 5:18 pm. The tornado tracked eastward, destroying a grain silo, throwing a grain auger into

a 20x40 shed, and ripping shingles off two houses before lifting 1.1 miles southwest of Hoopston at 5:23 pm.

Table 4-12 identifies NCDC-recorded tornadoes that caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-12:** NCDC-Recorded Tornadoes That Caused Damage, Death, or Injury in Vermilion County

Location or County*	Date	EF-Scale	Deaths	Injuries	Property Damage (millions of dollars)	Crop Damage (x \$1000)
Vermilion County	04/09/1953	3	1	5	25	0
Vermilion County	04/03/1974	2	0	12	2.5	0
Vermilion County	05/20/1976	4	0	0	2.5	0
Vermilion County	05/22/1991	1	0	0	2.5	0
<b>Total:</b>			<b>1</b>	<b>17</b>	<b>\$32.5</b>	<b>\$0</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

### ***Geographic Location for Tornado Hazard***

The entire county has the same risk of tornado occurrence. Tornadoes can occur at any location within the county.

### ***Hazard Extent for Tornado Hazard***

Historical tornadoes generally moved from southwest to northeast across the county. The extent of the hazard varies in terms of the size of the tornado, its path, and its wind speed.

### ***Risk Identification for Tornado Hazard***

Based on historical information, the probability of future tornadoes in Vermilion County is likely. The county should expect tornadoes with varying magnitudes to occur in the future. Tornadoes ranked as the number two hazard according to the RPI.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
3	x	4	=	12

### ***Vulnerability Analysis for Tornado Hazard***

Tornadoes can occur within any area in the county; therefore, the entire county population and all buildings are vulnerable to tornadoes. To accommodate this risk, this plan considers all buildings located within the county as vulnerable. Tables 4-9 and 4-10 display the existing buildings and infrastructure in Vermilion County.

### ***Critical Facilities***

All critical facilities are vulnerable to tornadoes. A critical facility is susceptible to many of the same impacts as any other building within the jurisdiction. These impacts vary based on the magnitude of the tornado but can include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community). Table 4-9 lists the types and numbers of all of the essential facilities in the area. Appendices E and F include a list and map of all critical facilities in Vermilion County.

### ***Building Inventory***

Table 4-10 lists the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can all expect the same impacts, similar to those discussed for critical facilities. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, and loss of building function (e.g., damaged home will no longer be habitable, causing residents to seek shelter).

### ***Infrastructure***

The types of infrastructure that could be impacted during a tornado include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is vulnerable, it is important to emphasize that any number of these structures could become damaged during a tornado. The impacts to these structures include broken, failed, or impassable roadways, broken or failed utility lines (e.g., loss of power or gas to community), and railway failure from broken or impassable rail lines. Bridges could fail or become impassable, causing risk to motorists.

### ***GIS-based Tornado Analysis***

SIU conducted four tornado scenarios for Vermilion County through the towns of Hoopeston, Oakwood, Ridge Farm, and Tilton. The planning team selected these scenarios. The following analysis quantifies the anticipated impacts of tornadoes in the county in terms of numbers and types of buildings and infrastructure damaged.

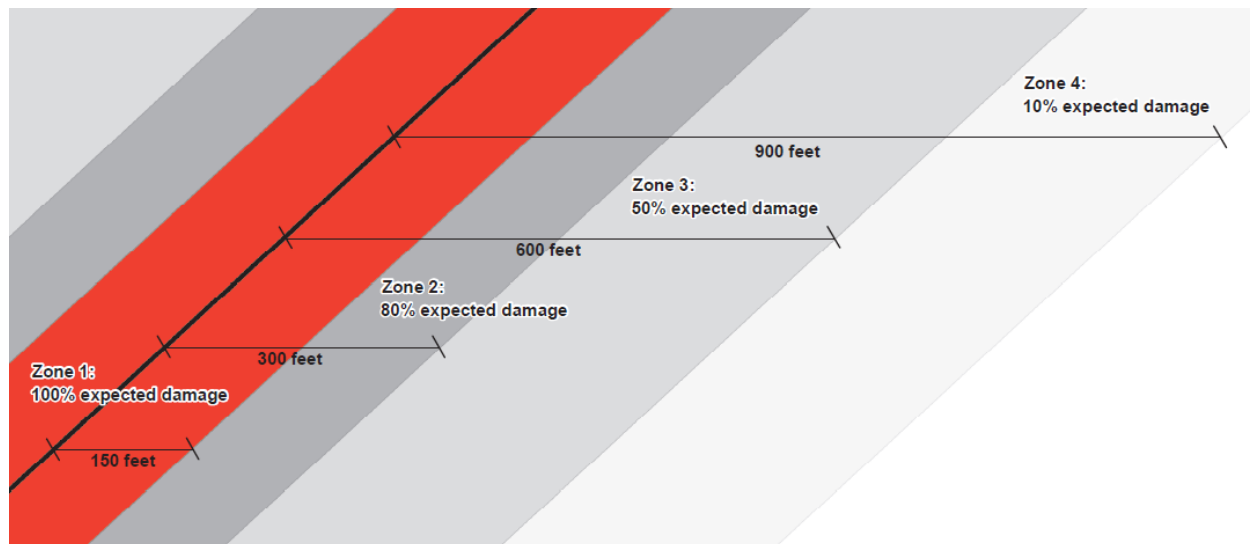
SIU used GIS-overlay modeling to determine the potential impacts of an F4 tornado. The analysis used hypothetical paths based upon F4 tornado events that run for 8.8 miles through Hoopeston, 3.7 miles through Oakwood, 7.3 miles through Ridge Farm, and 2.9 miles through Tilton. Table 4-13 depicts tornado damage curves and path widths (NOAA) utilized for the modeled scenario. The damage curve is based conceptual wind speeds, path winds, and path lengths from the Enhanced-Fujita Scale guidelines.

**Table 4-13: Tornado Path Widths and Damage Curves**

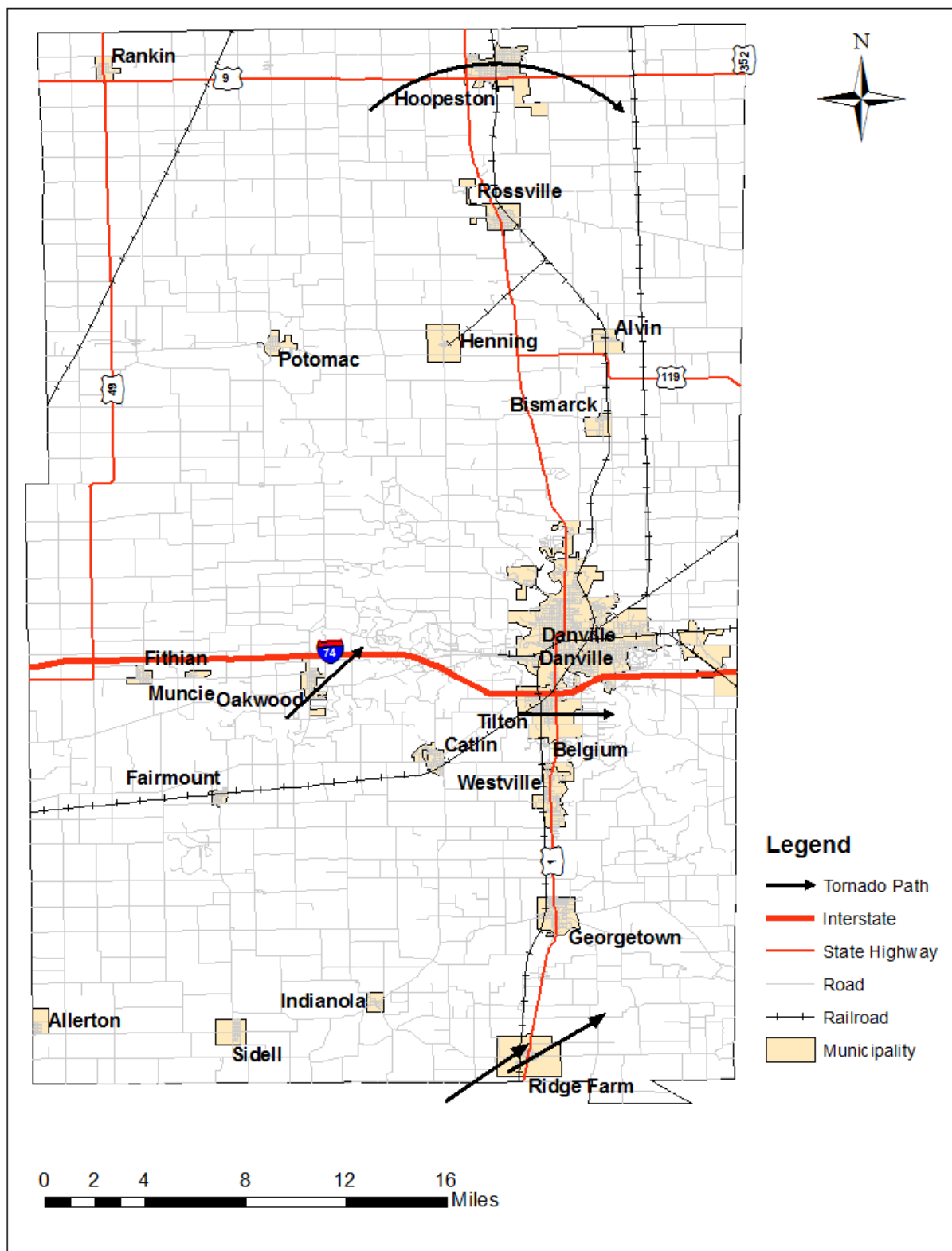
<b>Fujita Scale</b>	<b>Path Width (feet)</b>	<b>Maximum Expected Damage</b>
5	2,400	100%
4	1,800	100%
3	1,200	80%
2	600	50%
1	300	10%
0	150	0%

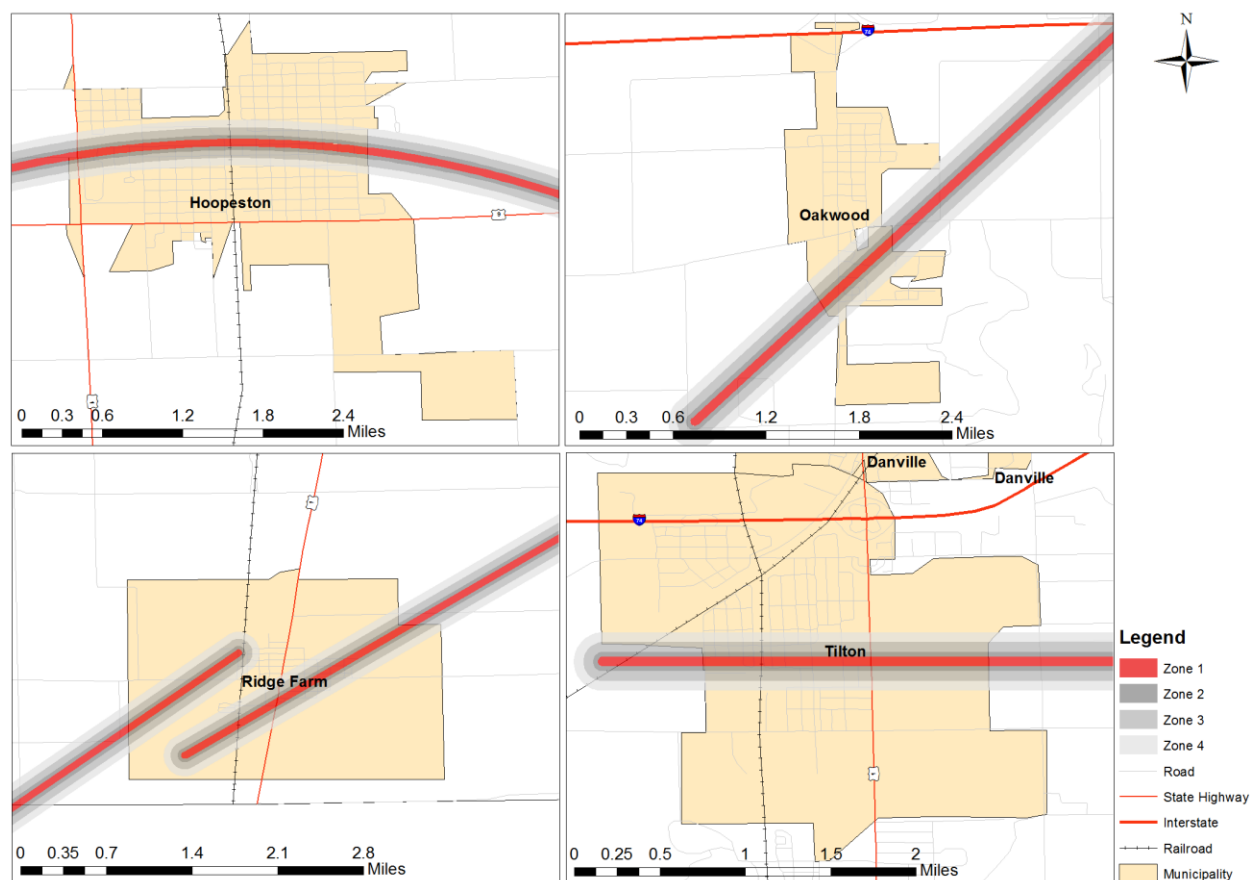
Degrees of damage depend on proximity to the path centerline within a given tornado path. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. To model the F4 tornado, SIU used GIS to create the desired tornado path and subsequently add buffers (damage zones) around the tornado path. Figure 4-4 and Table 4-14 illustrate the zone analysis. Figure 4-5 depicts the selected hypothetical tornado paths, and Figure 4-6 shows the damage curve buffers for each path.



**Figure 4-4: Tornado Analysis (Damage Curves) Using GIS Buffers****Table 4-14: F4 Tornado Analysis Using GIS Buffers**

Zone	Buffer (feet)	Damage Curve
1	0-150	100%
2	150-300	80%
3	300-600	50%
4	600-900	10%

**Figure 4-5: Tornado Tracks Through Hoopeston, Oakwood, Ridge Farm, and Tilton, IL**

**Figure 4-6: Modeled F4 Damage Buffers in Hoopeston, Oakwood, Ridge Farm, and Tilton, IL*****Modeled Impacts of F4 Tornadoes in Hoopeston, Oakwood, Ridge Farm, and Tilton***

Tables 4-15, 4-16, 4-17 and 4-18 show the results of the Hoopeston, Oakwood, Ridge Farm, and Tilton tornado scenarios, respectively. Figure 4-7 illustrates the potentially affected buildings for each scenario.

The GIS analysis for the Hoopeston scenario estimates that the modeled tornado would damage 520 buildings, which is approximately 27% of the total buildings. The estimated building losses are over \$23 million. The building losses are an estimate of building replacement costs multiplied by the damage percent.

**Table 4-15: Estimated Building Losses by Occupancy Type (x \$1000) in Hoopeston**

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	\$5,678	\$3,987	\$4,641	\$1,046
Commercial	\$1,457	\$1,299	\$1,622	\$109
Industrial	\$1,992	\$0	\$417	\$311
Agriculture	\$463	\$54	\$21	\$24
Religious	\$0	\$0	\$0	\$0
Government	\$0	\$0	\$0	\$0

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Education	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$9,591</b>	<b>\$5,340</b>	<b>\$6,701</b>	<b>\$1,489</b>

The GIS analysis for Oakwood estimates that the modeled tornado would damage 44 buildings, which is 4% of the total buildings. The estimated building losses are over \$2.5 million. The building losses are an estimate of building replacement costs multiplied by the damage percent.

**Table 4-16:** Estimated Building Losses by Occupancy Type (x \$1000) in Oakwood

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	\$662	\$86	\$782	\$285
Commercial	\$136	\$373	\$14	\$0
Industrial	\$0	\$0	\$0	\$0
Agriculture	\$0	\$98	\$63	\$8
Religious	\$0	\$0	\$0	\$0
Government	\$0	\$0	\$0	\$0
Education	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$798</b>	<b>\$557</b>	<b>\$860</b>	<b>\$293</b>

The GIS analysis for Ridge Farm estimates that the modeled tornado would damage 257 buildings, which is 49% of the total buildings. The estimated building losses are over \$9.3 million. The building losses are an estimate of building replacement costs multiplied by the damage percent.

**Table 4-17:** Estimated Building Losses by Occupancy Type (x \$1000) in Ridge Farm

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	\$2,609	\$2,423	\$2,248	\$316
Commercial	\$0	\$251	\$1,238	\$48
Industrial	\$0	\$0	\$0	\$0
Agriculture	\$185	\$0	\$0	\$20
Religious	\$0	\$0	\$0	\$0
Government	\$0	\$0	\$0	\$0
Education	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$2,795</b>	<b>\$2,674</b>	<b>\$3,486</b>	<b>\$385</b>

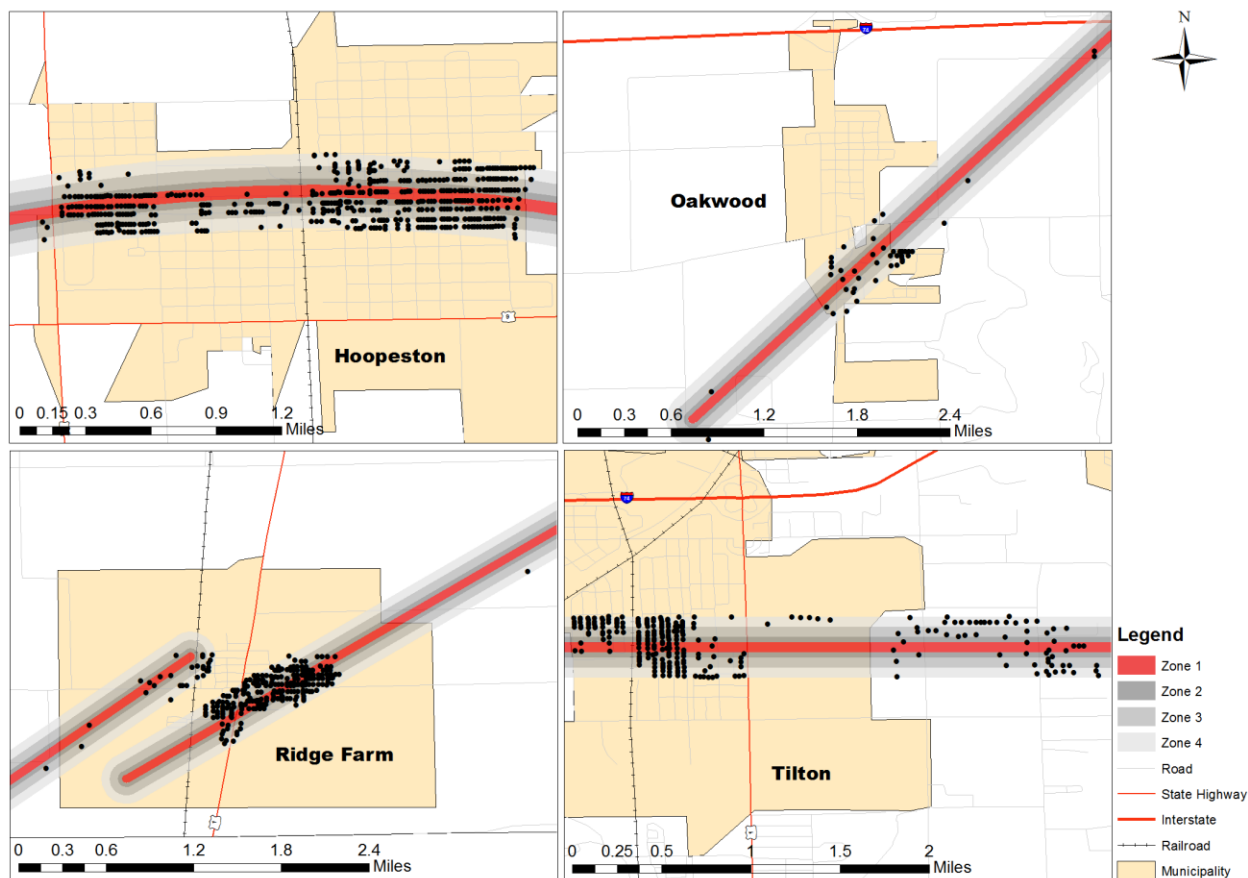
The GIS analysis for Tilton estimates that the modeled tornado would damage 267 buildings, which is 30% of the total buildings in Tilton. The estimated building losses are over \$8.7 million. The building losses are an estimate of building replacement costs multiplied by the damage percent.

**Table 4-18:** Estimated Building Losses by Occupancy Type (x \$1000) in Tilton

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	\$1,791	\$2,187	\$2,861	\$791
Commercial	\$0	\$158	\$82	\$359
Industrial	\$0	\$0	\$0	\$0
Agriculture	\$382	\$0	\$118	\$0

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Religious	\$0	\$0	\$0	\$0
Government	\$0	\$0	\$0	\$0
Education	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$2,173</b>	<b>\$2,345</b>	<b>\$3,061</b>	<b>\$1,150</b>

**Figure 4-7:** Building Inventory Affected by the EF4 Tornado in Hoopeston, Oakwood, Ridge Farm, and Tilton, IL

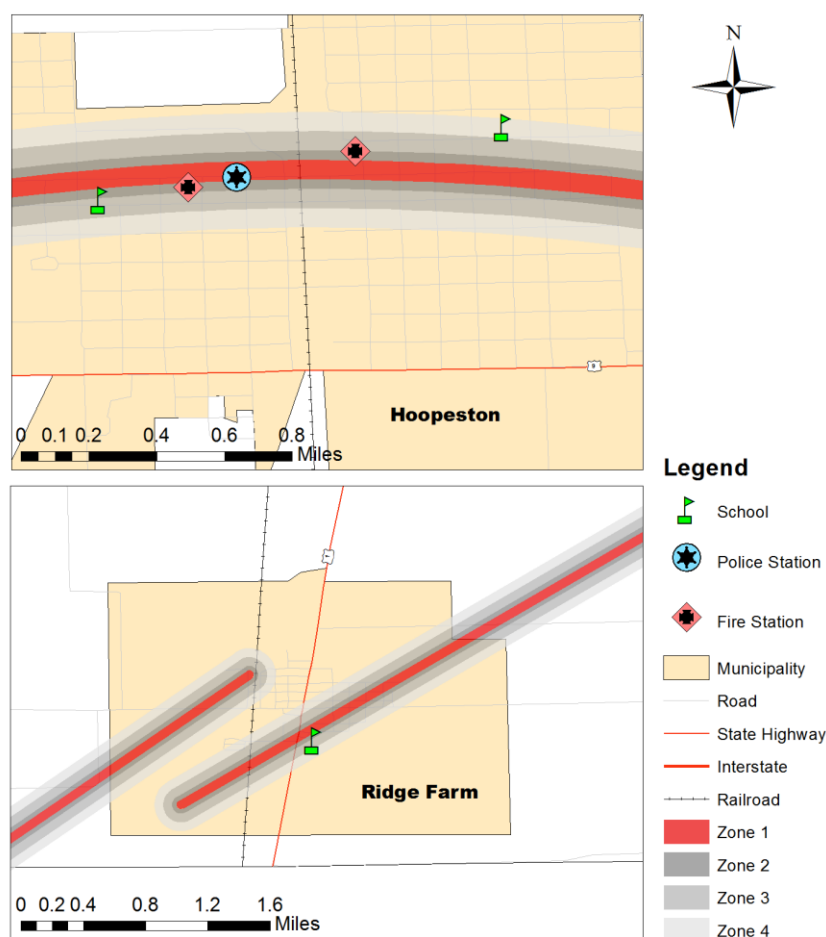


### *Essential Facilities Damage*

There are five essential facilities located within 900 feet of the hypothetical tornado path in Hoopeston and one essential facility located within 900 feet of the hypothetical tornado path in Ridge Farm. Table 4-19 identifies the affected facilities of Hoopeston and Ridge Farm, and Figure 4-8 shows their geographic locations. No essential facilities were within 900 feet of the hypothetical tornado path in Oakwood or Tilton.

**Table 4-19:** Essential Facilities Affected by the F4 Tornado in Hoopeston

Essential Facility	Facility Name
Fire Stations	Hoopeston FD #1
	Hoopeston FD #2
Police Stations	Hoopeston Police Department
Schools	Honeywell Elementary School
	John Greer Elementary School
	Ridge Farm Elementary School

**Figure 4-8:** Essential Facilities Affected by the EF4 Tornado in Hoopeston and Ridge Farm

### ***Vulnerability to Future Assets/Infrastructure for Tornado Hazard***

The entire population and all buildings are at risk because tornadoes can occur anywhere within the state, at any time. Furthermore, any future development in terms of new construction within the county is at risk. Table 4-10 includes the building exposure for Vermilion County.

All critical facilities in the county are at risk. Appendices E and F include a list and map of all critical facilities in Vermilion County.

### ***Suggestions for Community Development Trends***

Local officials will enhance severe storm preparedness if they sponsor a wide range of programs and initiatives to address the overall safety of county residents. The county needs to build new structures with more sturdy construction, and harden existing structures to lessen the potential impacts of severe weather. Building more warning sirens will warn the community of approaching storms to ensure the safety of Vermilion County residents.

## **4.4.2 Flood Hazard**

### ***Hazard Definition for Flooding***

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the magnitude and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. SIU classifies floods as one of two types in this plan: upstream floods or downstream floods. Both types of floods are common in Illinois.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause severe damage over relatively localized areas. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can result from inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Illinois, but they are most common in the spring and summer months.

Downstream floods, sometimes called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage. Riverine flooding on the large rivers of Illinois generally occurs during either the spring or summer.

### ***Previous Occurrences of Flooding***

The NCDC database reported 35 flood events in Vermilion County since 1994. The most significant flood events occurred in April 1994. Flooding occurred along the Vermilion, Embarras, Sangamon, and Illinois rivers and their tributaries due to heavy rain, which fell on April 11th and 12th. Rainfall amounts ranged from 1.40 to 5.28 inches in less than six hours at most locations. Flash flooding damaged numerous homes and many roads were closed. Danville's water treatment plant was also flooded.

Table 4-20 identifies NCDC-recorded floods that caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-20:** NCDC-Recorded Floods that Caused Damage, Death, or Injury in Vermilion County

<b>Location or County*</b>	<b>Date</b>	<b>Deaths</b>	<b>Injuries</b>	<b>Property Damage (millions of dollars)</b>	<b>Crop Damage (x \$1000)</b>
Central Illinois	04/12/1994	0	0	50	0
Central Illinois	05/12/2002	0	1	0	0

Location or County*	Date	Deaths	Injuries	Property Damage (millions of dollars)	Crop Damage (x \$1000)
Central Illinois	04/11/2994	2	0	50	0
<b>Total:</b>		<b>2</b>	<b>1</b>	<b>100</b>	<b>0</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

### ***Repetitive Loss Properties***

FEMA defines a repetitive loss structure as a structure covered by a contract of flood insurance issued under the NFIP that has suffered flood loss damage on two or more occasions during a 10-year period that ends on the date of the second loss, in which the cost to repair the flood damage is  $\geq 25\%$  of the market value of the structure at the time of each flood loss. Vermilion County has no repetitive loss structures.

### ***Geographic Location for Flooding***

Most flooding in Illinois occurs in the spring to early summer because of excessive rainfall and/or snowmelt. Severe thunderstorms may cause flooding during the summer or fall, but are often localized. The Vermilion, Embarras, Sangamon, and Illinois Rivers are the primary sources of river flooding in Vermilion County. Flash floods, brief heavy flows in small streams or normally dry creek beds, also occur within the county.

The 2010 Preliminary Digital Flood Insurance Rate Map (DFIRM) identified specific stream reaches for analysis. The map in Appendix D depicts areas of riverine flooding.

NOAA's Advanced Hydrologic Prediction Service provides information from stream gauges at points along various rivers across the United States. There are three gauges located within Vermilion County: (1) a ranked gauge on the Middle Fork Vermilion River above Oakwood, IL (USGS 03336645); (2) a ranked gauge on Vermilion River near Danville, IL (USGS 03339000); and (3) an unranked gauge on North Fork Vermilion River near Bismarck, IL (USGS 03338780).

### ***Hazard Extent for Flooding***

All floodplains are susceptible to flooding in Vermilion County. The floodplain of concern is for the 100-year flood event, shown in Figure 4-9. However, flooding is dependent on various local factors including, but not limited to, impervious surfaces, amount of precipitation, river-training structures, etc.

### ***Risk Identification for Flood Hazard***

Based on historical information, future occurrence of flooding in Vermilion County is probable. According to the Risk Priority Index (RPI), flooding is ranked as the number one hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
4	x	4	=	16

### ***Critical Facilities***

All critical facilities within the floodplain are vulnerable to floods. An essential facility will encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility, and loss of facility functionality (e.g., a damaged police station cannot serve the community). Appendices E and F include a list and map of all critical facilities in Vermilion County.



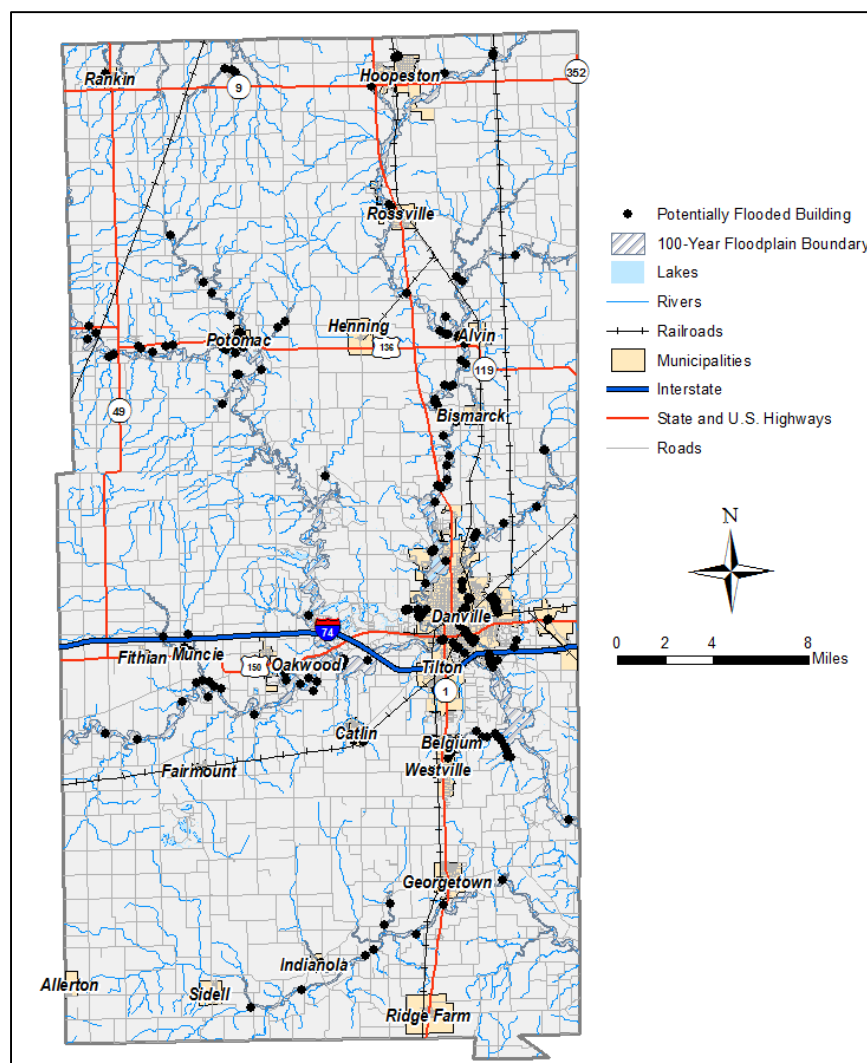
### ***Infrastructure***

The types of infrastructure potentially impacted by a flood include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available for this plan, it is important to emphasize that a flood could damage any number of these items. The impacts to these items include: broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); or railway failure from broken or impassable railways. Bridges could also fail or become impassable, causing risk to motorists.

### ***Hazus-MH Flood Analysis Using User-Defined Building Inventory***

SIU used Hazus-MH to generate the flood depth grid for a 100-year return period and made calculations by clipping the USGS one-third-arc-second DEM (~10 m) to the flood boundary. Next, SIU used Hazus-MH to estimate the damages for Vermilion County by utilizing a detailed building inventory database created from assessor and parcel data. According to this analysis, there are 350 buildings located in the Vermilion County 100-year floodplain. The estimated damage to these structures is \$30.8 million. Figure 4-9 depicts the building inventory within the 100-year floodplain and Table 4-21 shows the loss estimates by occupancy class.

**Figure 4-9:** Vermilion County 100-Year Floodplain Boundary and Potentially Flooded Buildings



**Table 4-21:** Estimated Flood Losses within the 100-year Floodplain

Occupancy Class	Number of Structures	Estimated Building Related Losses (x \$1000)
Residential	\$245	\$7,682
Agricultural	\$60	\$6,878
Commercial	\$24	\$16,121
Industrial	\$5	\$87
Religious/Non Profit	-	-
Government	\$0	\$0
<b>Total:</b>	<b>\$334</b>	<b>\$30,769</b>

***Critical Facilities Damage***

The analysis identified no critical facilities that are subject to flooding.

***Vulnerability Analysis for Flash Flooding***

Flash flooding could affect any low-lying location or areas of poor drainage within the county; therefore, a significant portion of the county's population and buildings are vulnerable to a flash flood. These structures can expect the same impacts as discussed in a riverine flood.

Appendices E and F include a list and map of all critical facilities in Vermilion County.

***Suggestions for Community Development Trends***

Reducing floodplain development is crucial to reducing flood-related damages. Areas with recent development may be more vulnerable to drainage issues. Storm drains and sewer systems are usually most susceptible to drainage issues. Damage to these can cause back-up of water, sewage, and debris into homes and basements, causing structural and mechanical damage as well as creating public health hazards and unsanitary conditions.

**4.4.3 Hazardous Materials Storage and Transportation Hazard*****Hazard Definition***

Illinois has numerous active transportation lines that run through many of its counties. Active railways transport harmful and volatile substances across county and state lines every day. Transporting chemicals and substances along interstate routes is commonplace in Illinois. The rural areas of Illinois have considerable agricultural commerce, meaning transportation of fertilizers, herbicides, and pesticides is common on rural roads. These factors increase the chance of hazardous material releases and spills throughout the state of Illinois.

The release or spill of certain substances can cause an explosion. Explosions result from the ignition of volatile products such as petroleum products, natural and other flammable gases, hazardous materials/chemicals, dust, and bombs. An explosion can potentially cause death, injury, and property damage. In addition, a fire routinely follows an explosion, which may cause further damage and inhibit emergency response. Emergency response may require fire, safety/law enforcement, search and rescue, and hazardous materials units.

***Previous Occurrences of Hazardous Materials Storage and Transportation Hazard***

Vermilion County has not experienced a significantly large-scale hazardous material incident at a fixed site or during transport resulting in multiple deaths or serious injuries. Minor releases have put local firefighters, hazardous materials teams, emergency management, and local law enforcement into action to try to stabilize these incidents and prevent or lessen harm to Vermilion County residents.

### ***Geographic Location of Hazardous Materials Storage and Transportation Hazard***

Hazardous material hazards are countywide and are primarily associated with the transport of materials via highway, railroad, and/or river barge.

### ***Hazard Extent of Hazardous Materials Storage and Transportation Hazard***

The extent of the hazardous material hazard varies both in terms of the quantity of material being transported as well as the specific content of the container.

### ***Risk Identification of Hazardous Materials Storage and Transportation Hazard***

Based on input from the planning team, the occurrence of a hazardous materials accident is likely. According to the RPI, “hazardous materials storage and transport” ranked as the number six hazard in Vermilion County.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
1	x	2	=	2

### ***Vulnerability Analysis for Hazardous Materials Storage and Transportation Hazard***

The entire county is vulnerable to a hazardous material release and can expect impacts within the affected area. The main concern during a release or spill is the affected population. Table 4-10 includes the building exposure for Vermilion County, as determined from building inventory. This plan will therefore consider all buildings located within the county as vulnerable.

### ***Critical Facilities***

All critical facilities and communities within the county are at risk. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure due to fire or explosion and loss of function of the facility (e.g., a damaged police station can no longer serve the community). Table 4-9 lists the types and numbers of all essential facilities in the area. Appendices E and F include a list and map of all critical facilities.

### ***Building Inventory***

Table 4-10 includes the building exposure including types and numbers of buildings for the entire county. Buildings within the county can expect impacts similar to those discussed for critical facilities. These impacts include structural failure due to fire or explosion or debris, and loss of function of the building (e.g., a person cannot inhabit a damaged home, causing residents to seek shelter).

### ***Infrastructure***

During a hazardous material release, the types of potentially impacted infrastructure include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available to this plan, it is important to emphasize that a hazardous materials release could damage any number of these items. The impacts to these items include: broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); and railway failure from broken or impassable railways. Bridges could become impassable causing risk to motorists.

### ***ALOHA Hazardous Chemical Release Analysis***

SIU used the U.S. Environmental Protection Agency’s ALOHA (Areal Locations of Hazardous Atmospheres) model to assess the impacted area for ammonia release in Danville and amphetamine release in Hoopeston. The Vermilion County planning team chose the Danville location because of significant rail and truck traffic along major transportation routes within a relatively densely populated area. The Vermilion County planning team identified the Hoopeston location as an EPA Brownfield site contaminated by an unknown chemical, and allowed SIU to choose the chemical; SIU discovered that the Brownfield site was formerly a trailer court, and decided amphetamine was a proper chemical.

Ammonia is a clear colorless gas with a strong odor. Ammonia is shipped as a liquid under its own vapor pressure. The density of liquid ammonia is 6 lb/gal. Contact with the unconfined liquid can cause frostbite. Gas is generally regarded as nonflammable but does burn within certain vapor concentration limits and with strong ignition. Fire hazard increases in the presence of oil or other combustible materials. Although gas is lighter than air, vapors from a leak initially hug the ground. Prolonged exposure of containers to fire or heat may cause violent rupturing and rocketing. Long-term inhalation of low concentrations of the vapors or short-term inhalation of high concentrations have adverse health effects. Used as a fertilizer, as a refrigerant, and in the manufacture of other chemicals (NOAA Reactivity, 2007).

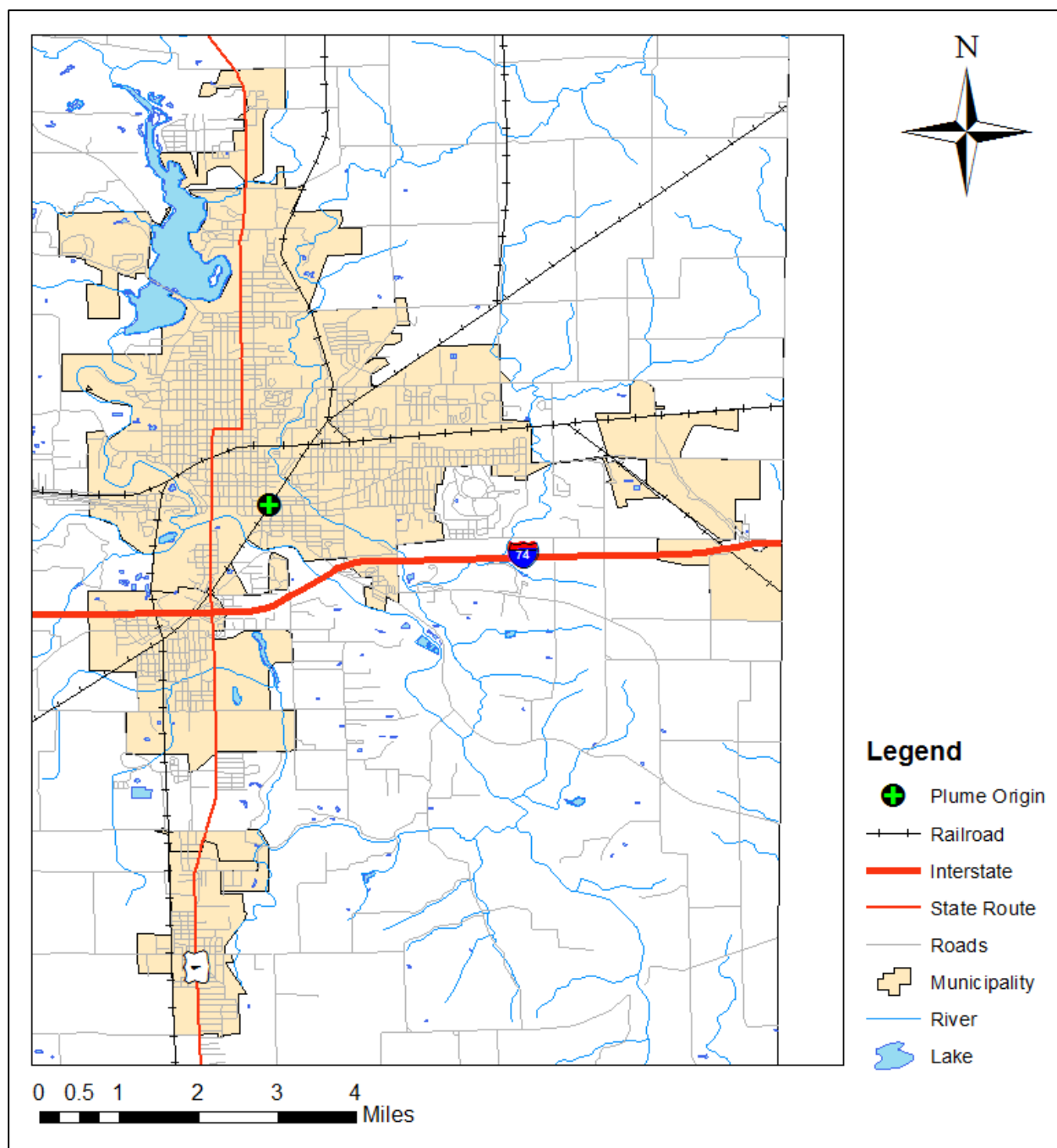
*SOURCE:* <http://cameochemicals.noaa.gov/chemical/4860>

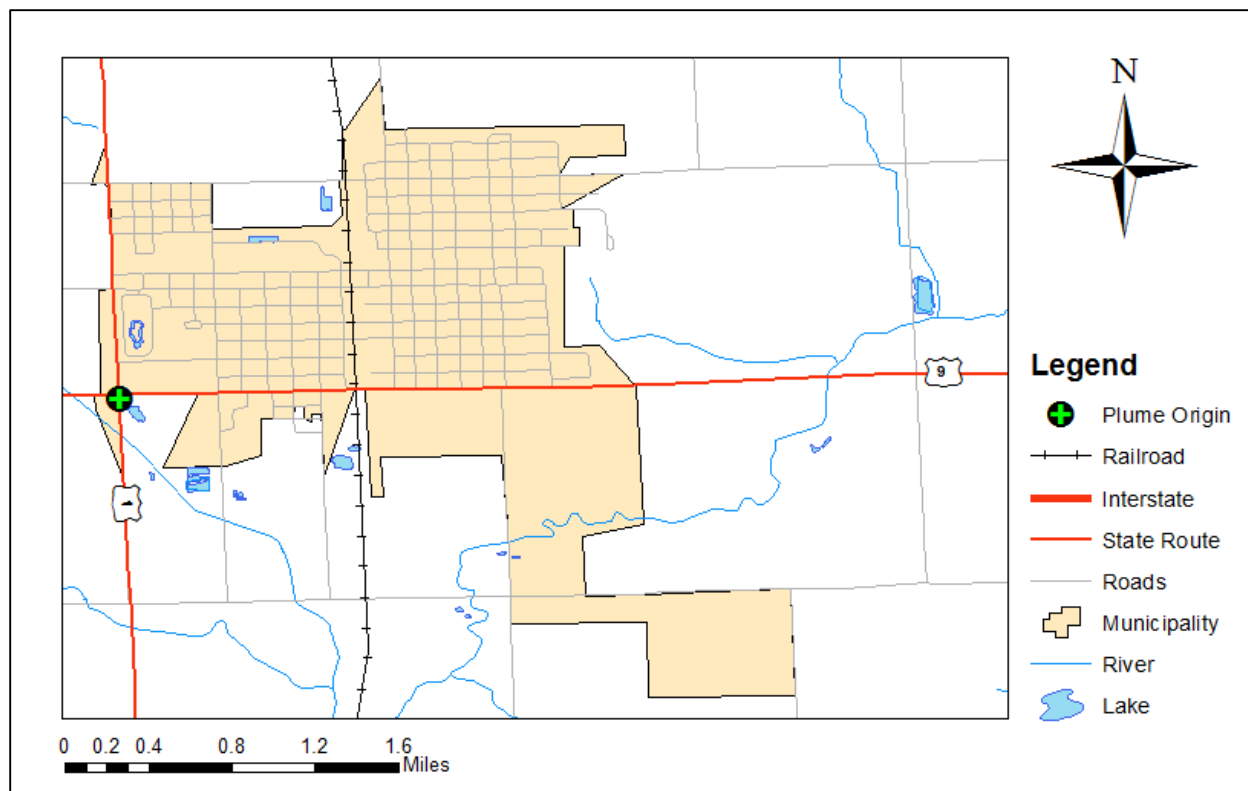
Amphetamine is a colored liquid with an amine odor. Used as a pharmaceutical, a central nervous system stimulant.

*Source:* <http://cameochemicals.noaa.gov/chemical/4862>

ALOHA is a computer program designed for response to chemical accidents, as well as emergency planning and training. Ammonia is a common chemical used in industrial operations and is found in either liquid or gas form. Rail and truck tankers haul ammonia to and from facilities. Amphetamine is a chemical used as a central nervous system stimulant and is found in liquid form. Illicit use and creation of amphetamine can occur in trailer courts.

For the both scenarios, SIU assumed moderate atmospheric and climatic conditions with a slight breeze from the west. The Vermilion County planning team chose the Danville target area due to its large population and the potential for a transportation related accidental release. The Vermilion County planning team chose the Hoopeston target because of its status as an EPA Brownfield site. Figure 4-10 depicts the geographic area covered in the Danville scenario analysis; Figure 4-11 depicts the geographic area covered in the Hoopeston scenario analysis.

**Figure 4-10: Location of Modeled Chemical Release in Danville, IL**

**Figure 4-11: Location of Modeled Chemical Release in Hoopeston, IL**

### ***Analysis Parameters for Danville Ammonia Release***

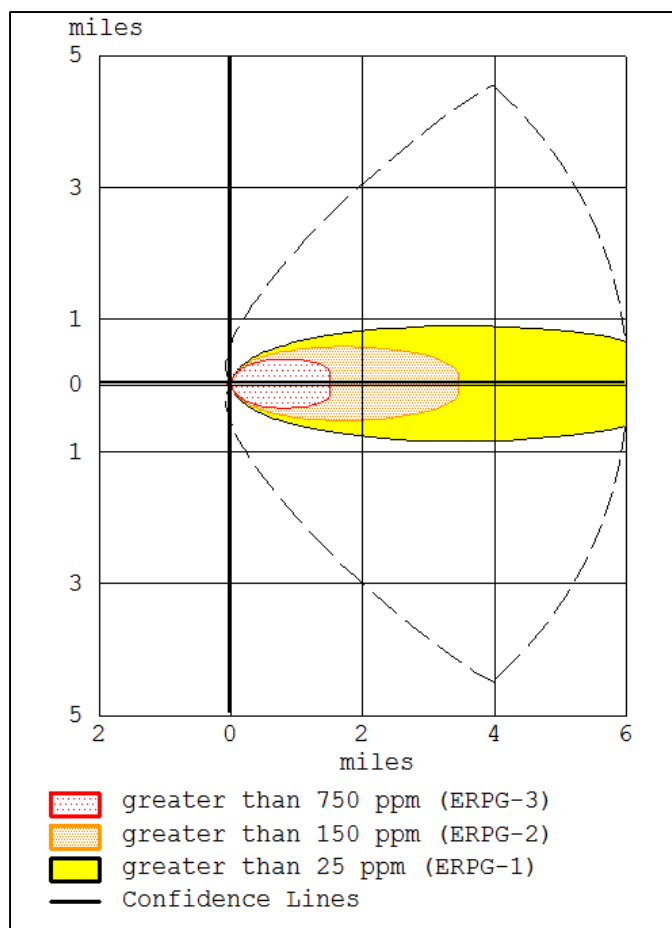
The ALOHA atmospheric modeling parameters for the Danville ammonia release, depicted in Figure 4-12, were based upon westerly wind speed of 5 miles per hour. The temperature was 68°F with 75% humidity and a cloud cover of five-tenths skies.

The source of the chemical spill is a horizontal, cylindrical-shaped tank. The diameter of the tank was set to 8 feet and the length set to 33 feet (12,408 gallons). At the time of its release, it was estimated that the tank was 75% full. The ammonia in this tank is in its liquid state.

This release was based on a leak from a 2.5-inch-diameter hole, 12 inches above the bottom of the tank. According to these ALOHA parameters, this scenario would release approximately 43,924 pounds of material per minute. Figure 4-13 depicts the plume footprint generated by ALOHA.

**Figure 4-12: ALOHA Modeling Parameters for Ammonia Release in Danville**

<b>SITE DATA:</b>	
Location: DANVILLE, ILLINOIS	
Building Air Exchanges Per Hour: 0.28 (unsheltered single storied)	
Time: January 31, 2013 1659 hours CST (using computer's clock)	
<b>CHEMICAL DATA:</b>	
Chemical Name: AMMONIA	Molecular weight: 17.03 g/mol
AEGL-1 (60 min): 30 ppm	AEGL-2 (60 min): 160 ppm
AEGL-3 (60 min): 1100 ppm	
IDLH: 300 ppm	LEL: 150000 ppm
UEL: 280000 ppm	
Ambient Boiling Point: -28.9° F	
Vapor Pressure at Ambient Temperature: greater than 1 atm	
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%	
<b>ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)</b>	
wind: 5 miles/hour from W at 10 meters	Cloud Cover: 5 tenths
Ground Roughness: open country	Stability Class: F
Air Temperature: 68° F	Relative Humidity: 75%
No Inversion Height	
<b>SOURCE STRENGTH:</b>	
Leak from hole in horizontal cylindrical tank	
Flammable chemical escaping from tank (not burning)	
Tank Diameter: 8.00 feet	Tank Length: 33 feet
Tank Volume: 12408 gallons	
Tank contains liquid	Internal Temperature: 68° F
Chemical Mass in Tank: 23.7 tons	Tank is 75% full
Circular Opening Diameter: 2.5 inches	
Opening is 12 inches from tank bottom	
Release Duration: 9 minutes	
Max Average Sustained Release Rate: 7,730 pounds/min	
(averaged over a minute or more)	
Total Amount Released: 43,924 pounds	
Note: The chemical escaped as a mixture of gas and aerosol (two phase flow).	

**Figure 4-13: ALOHA Generated Plume Footprint of Danville Ammonia Release**



### ***Analysis Parameters for Hoopeston Amphetamine Release***

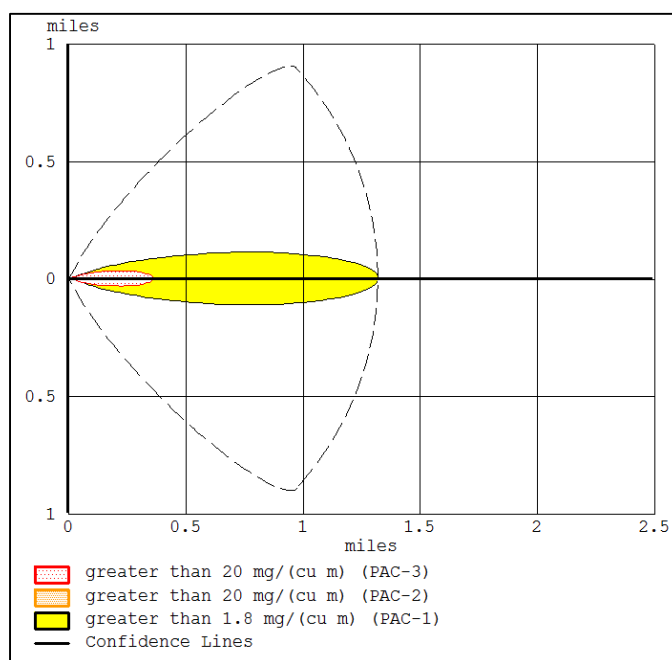
The ALOHA atmospheric modeling parameters for the Hoopeston amphetamine release, depicted in Figure 4-14, were based upon westerly wind speed of 5 miles per hour. The temperature was 68°F with 75% humidity and a cloud cover of five-tenths skies.

The source of the chemical spill is a direct source three feet off of the ground. The direct source is intended to model a small tank no larger than three feet in length and two feet in diameter which would be able to comfortably fit inside of a trailer. The release rate is 42 pounds of material per minute and the total material released is 2,520 pounds. Figure 4-15 depicts the plume footprint generated by ALOHA.

**Figure 4-14:** ALOHA Modeling Parameters for Amphetamine Release in Hoopeston

<b>SITE DATA:</b>	
Location: HOOPESTON, ILLINOIS	
Building Air Exchanges Per Hour: 0.29 (sheltered single storied)	
Time: February 6, 2013 1039 hours CST (using computer's clock)	
<b>CHEMICAL DATA:</b>	
Chemical Name: AMPHETAMINE	Molecular weight: 135.20 g/mol
PAC-1: 1.8 mg/(cu m)	PAC-2: 20 mg/(cu m) PAC-3: 20 mg/(cu m)
Normal Boiling Point: -unavail-	
Note: Not enough chemical data to use Heavy Gas option	
<b>ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)</b>	
Wind: 5 miles/hour from W at 10 meters	
Ground Roughness: open country	Cloud Cover: 5 tenths
Air Temperature: 68° F	Stability Class: C
No Inversion Height	Relative Humidity: 75%
<b>SOURCE STRENGTH:</b>	
Direct Source: 0.70 pounds/sec	Source Height: 3 feet
Release Duration: 60 minutes	
Release Rate: 42 pounds/min	
Total Amount Released: 2,520 pounds	

**Figure 4-15:** ALOHA Generated Plume Footprint of Hoopeston Amphetamine Release





Emergency Response Planning Guidelines (ERPG) estimate the concentrations at which most people will begin to experience health effects if they are exposed to a hazardous airborne chemical for one hour. The Emergency Response Planning Committee of the American Industrial Hygiene Association is developing these guidelines to help both national and local authorities, as well as private companies, deal with emergencies involving spills or other catastrophic exposures. As the substance moves away from the source, the level of substance concentration decreases. Each color-coded area depicts a level of concentration measured in parts per million (ppm).

- **ERPG 3:** The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing or developing life-threatening health effects. The red buffer ( $\geq 750$  ppm) extends greater than six miles from the point of release after one hour.
- **ERPG 2:** The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action. The orange buffer ( $\geq 150$  ppm) extends greater than six miles from the point of release after one hour.
- **ERPG 1:** The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient health effects or perceiving a clearly defined, objectionable odor. The yellow buffer ( $\geq 25$  ppm) extends greater than six miles from the point of release after one hour.
- **Confidence Lines:** The dashed lines depict the level of confidence in which the exposure level will be contained. The ALOHA model is 95% confident that the release will stay within this boundary.

*Source:* <http://response.restoration.noaa.gov/>

The Protective Action Criteria (PACs) dataset is a hierarchy-based system of the three common public exposure guideline systems: Acute Exposure Guideline Levels (AEGLs), Temporary Emergency Exposure Limits (TEELs), and ERPGs. A particular hazardous substance may have values in any—or all—of these systems.

The PACs dataset implements the following hierarchy when choosing which values to use for the PACs:

1. Final, 60-minute AEGL values (**preferred**)
2. Interim, 60-minute AEGL values
3. ERPG values
4. TEEL values

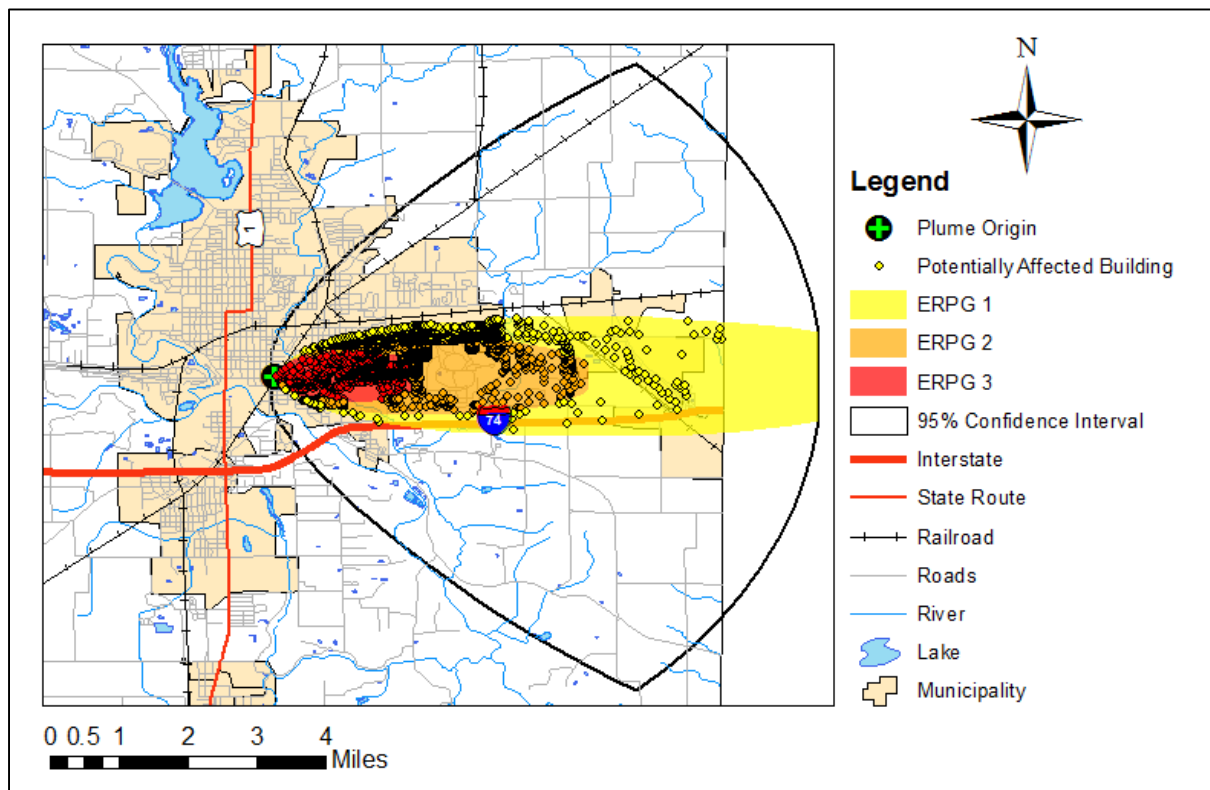
The PACs dataset has a single set of values (PAC-1, PAC-2, and PAC-3) for each chemical, but the source of those values will vary. So, for instance, the PAC-3 value for one chemical might be an ERPG-3 and the PAC-3 value for a different chemical might be the TEEL-3. A hierarchical system can be helpful for choosing levels of concern for chemicals that are defined under two or more of the public exposure guidelines.

*Source:* <http://response.restoration.noaa.gov/>

### Results for Ammonia Release Analysis in Danville

SIU calculated an estimate of property exposed to the ammonia spill in Danville by using the building inventory and intersecting these data with each of the ERPG levels (ERPG 3:  $\geq 750$  ppm, ERPG 2:  $\geq 150$  ppm and ERPG 1:  $\geq 25$  ppm). Figure 4-16 depicts the ammonia spill footprint and location of the buildings exposed to the propane spill in Danville. This GIS overlay analysis estimates that the full replacement cost of the buildings exposed to the ammonia plume are over \$321.8 million. Table 4-22 lists building exposure by AEGL zone.

**Figure 4-16:** ALOHA Plume Footprint Overlaid in ArcGIS for the Danville Ammonia Release



**Table 4-22:** Estimated Building Exposure for all ERPG Zones as a result of the Danville Ammonia Release

Occupancy	Building Exposure (x \$1000)			Number of Buildings		
	ERPG 1	ERPG 2	ERPG 3	ERPG 1	ERPG 2	ERPG 3
Residential	\$32,337	\$35,881	\$29,613	782	757	801
Commercial	\$90,708	\$6,321	\$14,304	47	37	72
Industrial	\$63,149	\$1,213	\$44,757	8	3	11
Agriculture	\$2,041	\$1,445	\$0	15	12	0
Religious	\$0	\$0	\$0	0	0	0
Government	\$0	\$3,665	\$0	0	2	0
Education	\$0	\$22,883	\$6,978	0	2	2
<b>Total:</b>	<b>\$188,235</b>	<b>\$71,408</b>	<b>\$95,652</b>	<b>852</b>	<b>813</b>	<b>886</b>

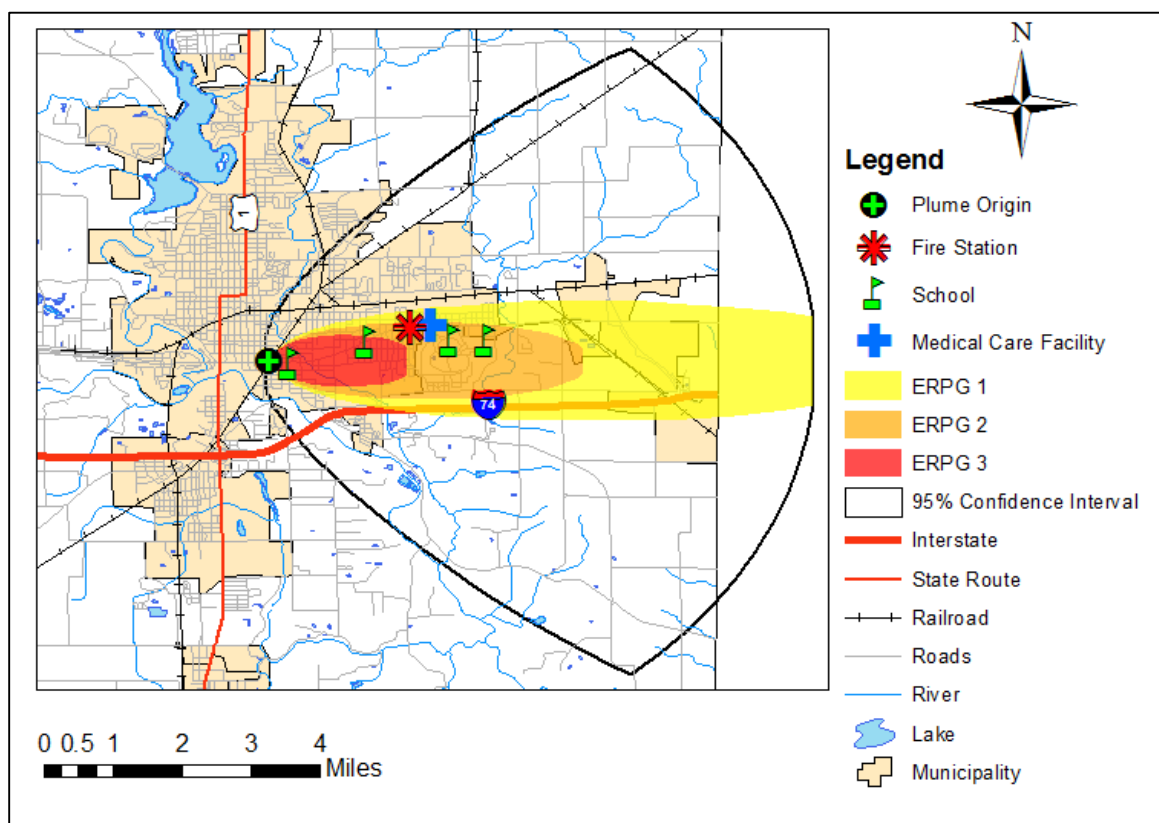
### ***Critical Facilities Damage***

There are six critical facilities within the limits of the Danville ammonia scenario. Table 4-23 and Figure 4-17 identify the affected facilities

**Table 4-23:** Essential Facilities within Danville Ammonia Plume Footprint

Essential Facility	Facility Name
Fire Stations	Danville Fire Department #4
Medical Care Facilities	Veterans Affairs Med Center
Schools	Cannon Elementary School
	Meade Park Elementary School
	Holy Family School
	Danville Area Community College

**Figure 4-17:** Map of Essential Facilities Located within the Ammonia Plume Footprint in Danville, IL

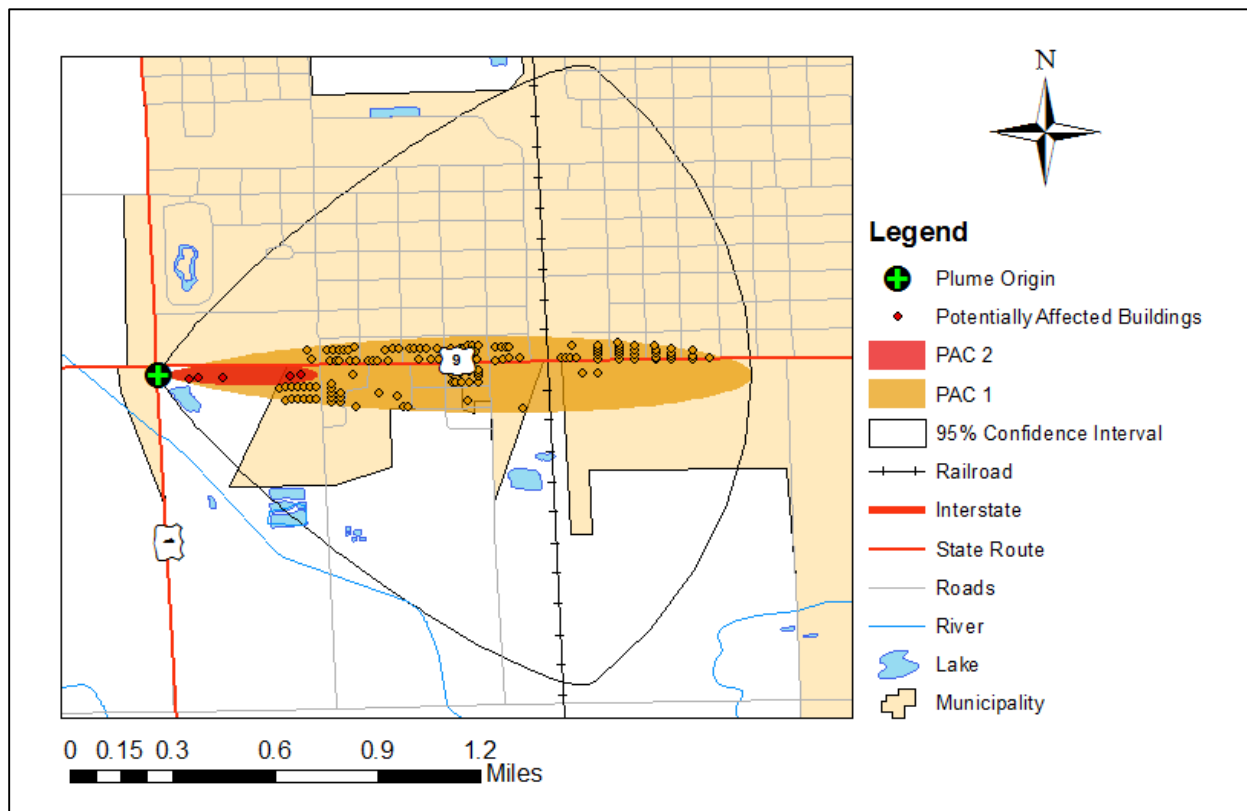


### ***Results for Amphetamine Release Analysis in Hoopeston***

SIU calculated an estimate of property exposed to the amphetamine spill in Hoopeston by using the building inventory and intersecting these data with each of the PAC levels (PAC 3:  $\geq 20.0 \text{ mg/m}^3$ , PAC 2:  $\geq 2.0 \text{ mg/m}^3$ , and PAC 1:  $\geq 0.1 \text{ mg/m}^3$ ). Figure 4-18 depicts the amphetamine spill footprint and location of the buildings exposed to the propane spill in Hoopeston. This GIS overlay analysis estimates that the full

replacement cost of the buildings exposed to the amphetamine plume are approximately \$10.7 million. Table 4-24 lists building exposure by AEGL zone.

**Figure 4-18:** ALOHA Plume Footprint Overlaid in ArcGIS for the Hoopeston Amphetamine Release



**Table 4-24:** Estimated Building Exposure for all PAC Zones as a result of the Hoopeston Amphetamine Release

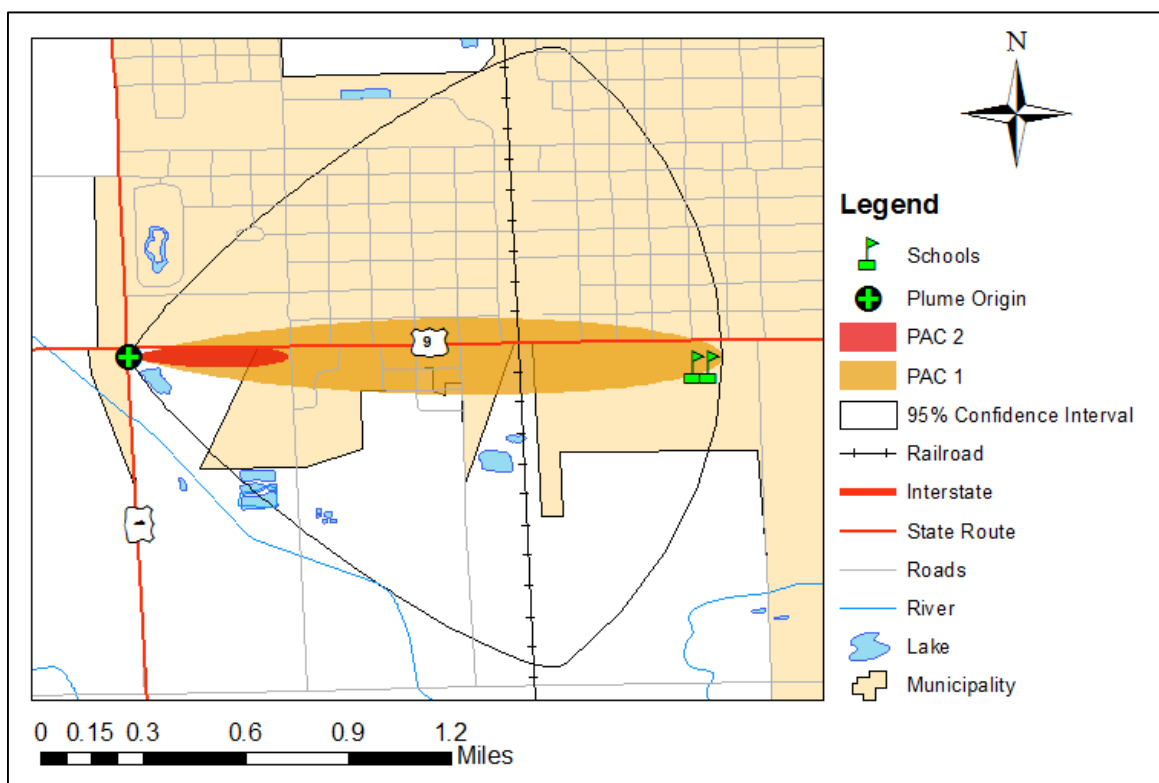
Occupancy	Building Exposure (x 1000)		Number of Buildings	
	PAC 1	PAC 2	PAC 1	PAC 2
Residential	\$7,227	\$451	108	5
Commercial	\$2,055	\$0	9	0
Industrial	\$960	\$0	6	0
Agriculture	\$0	\$0	0	0
Religious	\$0	\$0	0	0
Government	\$0	\$0	0	0
Education	\$9,433	\$0	2	0
<b>Total:</b>	<b>\$19,675</b>	<b>\$451</b>	<b>123</b>	<b>5</b>

### ***Essential Facilities Damage***

There are two essential facilities within the limits of the Hoopeston amphetamine scenario. Table 4-25 and Figure 4-19 identify the affected facilities.

**Table 4-25:** Essential Facilities within the Amphetamine Plume Footprint in Paris

Essential Facility	Facility Name
Schools	Hoopeston Area High School
	Hoopeston Area Middle School

**Figure 4-19:** Map of Essential Facilities Located within the Amphetamine Plume Footprint in Hoopeston

### ***Building Inventory Damage***

Table 4-10 lists the building exposure, including type and number of buildings, for the entire county. Buildings within the county can all expect impacts similar to those discussed for critical facilities. These impacts include structural failure due to fire or explosion or debris and loss of function of the building (e.g., a person cannot inhabit a damaged home, causing residents to seek shelter).

### ***Vulnerability to Future Assets/Infrastructure from Hazardous Materials Storage and Transportation Hazard***

Any new development within the county will be vulnerable to these events, especially development along major roadways.

### ***Suggestion for Community Development Trends***

Because the hazardous material hazard events may occur anywhere within the county, future development is impacted. The major transportation routes and the industries located in Vermilion County pose a threat of dangerous chemicals and hazardous materials release.

#### 4.4.4 Drought and Extreme Heat

##### ***Hazard Definition for Drought Hazard***

Drought is a climatic phenomenon. The meteorological condition that creates a drought is below-normal rainfall. However, excessive heat can lead to increased evaporation, which enhances drought conditions. Droughts can occur in any month. Drought differs from normal arid conditions found in low-rainfall areas. Drought is the consequence of a reduction in the amount of precipitation over an undetermined length of time (usually a growing season or longer).

The severity of a drought depends on location, duration, and geographical extent. Additionally, drought severity depends on the water supply, usage demands by human activities, vegetation, and agricultural operations. Drought will affect the quality and quantity of crops, livestock, and other agricultural assets. Drought can adversely impact forested areas leading to an increased potential for extremely destructive forest and woodland fires that could threaten residential, commercial, and recreational structures.

##### ***Hazard Definition for Extreme Heat Hazard***

Drought conditions are often accompanied by extreme heat, which is defined as temperatures that exceed the average high for the area by 10°F or more and last for several weeks.

##### ***Common Terms Associated with Extreme Heat***

**Heat Wave:** Prolonged period of excessive heat often combined with excessive humidity.

**Heat Index:** A number, in degrees Fahrenheit, which estimates how hot it feels when relative humidity is added to air temperature. Exposure to full sunshine can increase the heat index by 15°F.

**Heat Cramps:** Muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with heat.

**Heat Exhaustion:** Typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs, resulting in a form of mild shock. If left untreated, the victim's condition will worsen. Body temperature will continue to rise, and the victim may suffer heat stroke.

**Heat and Sun Stroke:** A life-threatening condition. The victim's temperature control system, which produces sweat to cool the body, stops working. The body's temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Source: FEMA

##### ***Previous Occurrences for Drought and Extreme Heat***

The NCDC database reported seven drought/heat wave events in Vermilion County since 1997. The most recent reported event occurred in August 2006. An extended period of heat and humidity occurred across central and southeast Illinois from July 30th to August 2nd. Afternoon high temperatures ranged from 94 to 100 degrees most afternoons, with afternoon heat indices ranging from 105 to 110. This extreme heat event attributed to no property losses, crop losses, deaths or injuries in Vermilion County.

Table 4-26 includes NCDC-recorded droughts/heat waves that caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-26:** NCDC-Recorded Drought and/or Extreme Heat That Caused Damage, Death, or Injury in Vermilion County

Location or County	Date	Deaths	Injuries	Property Damage (x \$1000)	Crop Damage (x \$1000)
Central Illinois	07/20/1999	4	0	0	0
Central Illinois	07/26/1997	2	0	0	0
Central Illinois	07/30/2006	1	0	0	0
Central Illinois	07/22/2005	1	0	0	0
Central Illinois	07/28/1999	1	0	0	0
Central Illinois	06/26/1998	1	0	0	0
<b>Total:</b>		<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

### ***Geographic Location for Drought and Extreme Heat***

Droughts are regional in nature. Most areas of the United States are vulnerable to the risk of drought and extreme heat.

### ***Hazard Extent for Drought and Extreme Heat***

The extent of droughts or extreme heat varies both depending on the magnitude and duration of the heat and the range of precipitation.

### ***Risk Identification for Drought and/or Extreme Heat***

Based on input from the planning team, the occurrence of future drought and extreme heat is not of high-concern. The planning team did not rank drought and extreme heat as a hazard.

### ***Vulnerability Analysis for Drought and Extreme Heat***

Drought and extreme heat are a potential threat across the entire county; therefore, the county is vulnerable to this hazard and can expect impacts within the affected area. According to FEMA, approximately 175 Americans die each year from extreme heat. Young children, elderly, and hospitalized populations have the greatest risk.

The entire population and all buildings are at risk. Table 4-10 includes the building exposure for Vermilion County, as determined from the building inventory.

### ***Critical Facilities***

All critical facilities are vulnerable to drought. A critical facility will encounter many of the same impacts as any other building within the jurisdiction, which should involve little or no damage. Potential impacts include water shortages, fires as a result of drought conditions, and residents in need of medical care from the heat and dry weather. Table 4-9 lists the types and numbers of all of the essential facilities in the area. Appendices E and F include a list and map of all critical facilities in Vermilion County.

### ***Building Inventory***

Table 4-10 lists the building exposure, including types and numbers of buildings for the entire county. The buildings within the county can all expect impacts similar to those discussed for critical facilities. These impacts include water shortages, fires as a result of drought conditions, and residents in need of medical care from the heat and dry weather.



***Infrastructure***

During a drought, the types of potentially impacted infrastructure include roadways, utility lines/pipes, railroads, and bridges. The risk to these structures is primarily associated with fire, which could result from hot, dry conditions. Since the county's entire infrastructure is vulnerable, damage to any infrastructure is possible. The impacts to these items include: impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); or impassable railways. Bridges could become impassable, causing risk to motorists.

***Vulnerability to Future Assets/Infrastructure from Drought/Extreme Heat Hazard***

Future development will remain vulnerable to droughts. Typically, some urban and rural areas are more susceptible than others. For example, urban areas are subject to water shortages during periods of drought. Excessive demands of densely populated areas put a limit on water resources. In rural areas, crops and livestock may suffer from extended periods of heat and drought. Dry conditions can lead to the ignition of wildfires that could threaten residential, commercial, and recreational areas.

***Assessment of Community Development Trends***

Because droughts and extreme heat are regional in nature, future development is susceptible to drought. Although urban and rural areas are equally vulnerable to this hazard, those living in urban areas may have a greater risk from the effects of a prolonged heat wave. The atmospheric conditions that create extreme heat tend to trap pollutants in urban areas, adding contaminated air to the excessively hot temperatures and creating increased health problems. Furthermore, asphalt and concrete store heat longer, gradually releasing it at night and producing high nighttime temperatures. This phenomenon is known as the "urban heat island effect."

Source: FEMA

Local officials should address drought and extreme heat hazards by educating the public on steps to take before and during the event—for example, temporary window reflectors to direct heat back outside, staying indoors as much as possible, and avoiding strenuous work during the warmest part of the day.

**4.4.5 Winter Storm Hazard*****Hazard Definition of Winter Storm Hazard***

Severe winter weather consists of various forms of precipitation and weather conditions. This may include one or more of the following: freezing rain, sleet, heavy snow, blizzards, icy roadways, extreme low temperatures, and strong winds. These conditions can cause human health risks such as frostbite, hypothermia, or death and cause property damage and disrupt economic activity.

***Ice (Glazing) and Sleet Storms***

Ice or sleet, even in small quantities, can result in hazardous driving conditions and can cause property damage. Sleet involves raindrops that freeze completely before reaching the ground. Sleet does not stick to trees and wires. Ice storms, on the other hand, involve liquid rain that falls through subfreezing air and/or onto sub-freezing surfaces, freezing on contact with those surfaces. The ice coats trees, buildings, overhead wires, and roadways, sometimes causing extensive damage.

Ice storms are some of the most damaging winter storms in Illinois. Ice storms occur when moisture-laden Gulf air converges with the northern jet stream causing freezing rain that coats power and communication lines and trees with heavy ice. Strong winds can cause the overburdened limbs and cables to snap; leaving large sectors of the population without power, heat, or communication.

### ***Snow Storms***

Rapid accumulation of snow, often accompanied by high winds, cold temperatures, and low visibility, characterize significant snowstorms. A blizzard is categorized as a snow storm with winds of 35 miles per hour or greater and/or visibility of less than one-quarter mile for three or more hours. Strong winds during a blizzard blow falling and fallen snow, creating poor visibility and impassable roadways. Blizzards potentially result in property damage.

Blizzards repeatedly affect Illinois. Blizzard conditions cause power outages, loss of communication, and transportation difficulties. Blizzards can reduce visibility to less than one-quarter mile, and the resulting disorientation makes even travel by foot dangerous if not deadly.

### ***Severe Cold***

Severe cold involves ambient air temperatures that drop to 0°F or below. These extreme temperatures can increase the likelihood of frostbite and hypothermia. High winds during severe cold events can enhance the air temperature's effects. Fast winds during cold weather events can lower the wind chill factor (how cold the air feels on your skin). As a result, the time it takes for frostbite and hypothermia to affect a person's body will decrease.

### ***Previous Occurrences of Winter Storm Hazard***

The NCDC database identified 35 winter storm and extreme cold events for Vermilion County since 1995. The most recent reported event occurred in December of 2010 when a low pressure system tracking from the Dakotas southeastward into the Ohio River Valley brought heavy snow to Illinois. This winter storm attributed to no property losses, crop losses, deaths or injuries in Vermilion County.

Table 4-27 lists the NCDC-recorded winter storms that caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-27: NCDC-Recorded Winter Storms That Caused Damage, Death, or Injury in Vermilion County**

Location or County	Date	Deaths	Injuries	Property Damage (x \$1000)
Central Illinois	01/18/1996	0	2	0
Central Illinois	01/19/2000	0	2	0
Central Illinois	01/02/1996	0	4	0
Central Illinois	01/08/1997	0	6	0
Central Illinois	01/26/1997	0	9	0
Central Illinois	12/08/2005	1	0	0
Central Illinois	12/18/1995	1	0	0
Central Illinois	03/19/1996	1	0	0
Central Illinois	01/01/1999	1	1	0
Central Illinois	12/13/2000	1	1	0
Central Illinois	01/15/1997	1	7	0
Central Illinois	02/02/1996	2	0	0
Central Illinois	03/08/1998	2	0	0
<b>Total:</b>		10	32	<b>\$0</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

### ***Geographic Location of Winter Storm Hazard***

Severe winter storms are regional in nature. Most of the NCDC data are calculated regionally or in some cases statewide.

### ***Hazard Extent of Winter Storm Hazard***

The extent of the historical winter storms varies in terms of storm location, temperature, and ice or snowfall. A severe winter storm can occur anywhere in the county.

### ***Risk Identification of Winter Storm Hazard***

Based on historical information and input from the planning team, the occurrence of future winter storms is likely. The county should expect winter storms of varying magnitudes. According to the RPI, winter storms ranked as the number three hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
3	x	4	=	12

### ***Vulnerability Analysis of Winter Storm Hazard***

Winter storm impacts are equally likely across the entire county; therefore, the entire county is vulnerable to a winter storm and can expect impacts within the affected area. Table 4-10 includes the building exposure for Vermilion County, as determined from the building inventory.

### ***Critical Facilities***

All critical facilities are vulnerable to a winter storm. A critical facility will encounter many of the same impacts as other buildings within the county. These impacts include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow. Table 4-9 lists the types and numbers of the essential facilities in the area. Appendices E and F include a list and map of all critical facilities.

### ***Building Inventory***

Table 4-10 lists the building exposure in terms of types and numbers of buildings for the entire county. The impacts to the general buildings within the county are similar to the damages expected to the critical facilities. These include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow.

### ***Infrastructure***

During a winter storm, the types of potentially impacted infrastructure include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is vulnerable, it is important to emphasize that a winter storm could impact any structure. Potential impacts include broken gas and/or electricity lines or damaged utility lines, damaged or impassable roads and railways, and broken water pipes.

### ***Potential Dollar Losses for Winter Storm Hazard***

SIU determined that since 1995 Vermilion County has incurred significant property damages for some winter storms, including sleet/ice and heavy snow. The National Weather Service reports that on average, Vermilion County receives 17.17 inches of ice/snow.

### ***Vulnerability to Future Assets/Infrastructure for Winter Storm Hazard***

Any new development within the county will remain vulnerable to these events.

### ***Suggestions for Community Development Trends***

Because winter storm events are regional in nature, future development across the county will also face winter storms.

#### 4.4.6 Fire Hazard

##### ***Hazard Definition for Fire Hazard***

This plan addresses three major categories of fires for Vermilion County: (1) tire/scrap fires; (2) structural fires; and (3) wildfires.

##### ***Tire Fires***

The state of Illinois generates thousands of scrap tires annually. Many of those scrap tires end up in approved storage sites that are carefully regulated and controlled by federal and state officials. However, scrap tires are sometimes dumped in unapproved locations throughout the state, the number of which is inestimable.

Tire disposal sites are potential fire hazards, in large part, because of the large number of scrap tires typically present at one site. This large amount of fuel renders standard firefighting practices nearly useless. Flowing and burning oil released by the scrap tires can spread the fire to adjacent areas. Tire fires differ from conventional fires in the following ways:

- Relatively small tire fires can require significant fire resources to control and extinguish.
- Those resources often strain local community and county capabilities.
- Major tire fires can have significant environmental consequences. Extreme heat can convert a standard vehicle tire into approximately two gallons of oily residue that may leak into the soil or migrate to streams and waterways.

##### ***Structural Fires***

Lightning strikes, poor building construction, and poor building condition are the main causes for most structural fires in Illinois. Vermilion County has a few structural fires each year countywide.

##### ***Wildfires***

When hot and dry conditions develop, forests may become vulnerable to wildfires. In the past few decades, increased commercial and residential development near forested areas has dramatically changed the nature and scope of the wildfire hazard. In addition, the increase in structures resulting from new development can strain the effectiveness of fire service personnel in the county.

##### ***Previous Occurrences for Fire Hazard***

Vermilion County has not experienced a significant or large-scale fire that resulted in a large number of fatalities or serious injuries.

##### ***Geographic Location for Fire Hazard***

Fire hazards occur countywide and therefore affect the entire county. The forested areas in the county have a higher chance of widespread fire hazard.

##### ***Hazard Extent for Fire Hazard***

The extent of the fire hazard varies both in terms of the severity of the fire and the type of material burning. Fires are a potential hazard for all communities in Vermilion County.

##### ***Risk Identification for Fire Hazard***

Based on input from the Vermilion County planning team, fire occurrence is likely. Fire/explosion ranked as the number seven hazard, according to the RPI.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
2	x	1	=	2

##### ***Vulnerability Analysis for Fire Hazard***

Fire hazard threatens the entire jurisdiction; therefore, the entire population and all buildings within the county are vulnerable to fires.

Table 4-10 includes the building exposure for Vermilion County, as determined from the building inventory. The entire population and all buildings are at risk.

### ***Critical Facilities***

All critical facilities are vulnerable to fire hazards. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural damage from fire and water damage from efforts extinguishing fire. Table 4-9 lists the types and numbers of essential facilities in the area. Appendices E and F include a list and map of all critical facilities in Vermilion County.

### ***Building Inventory***

Table 4-10 lists building exposure, including types and numbers of buildings for the entire county. Impacts to the general buildings within the county are similar to the damages expected to the critical facilities. These impacts include structural damage from fire and water damage from efforts to extinguish the fire.

### ***Infrastructure***

During a fire, potentially impacted infrastructure includes roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is equally vulnerable, it is important to emphasize that a fire could damage any number of these items. Potential impacts include structural damage resulting in impassable roadways and power outages.

### ***Vulnerability to Future Assets/Infrastructure for Fire Hazard***

Any future development will be vulnerable to these events.

### ***Assessment of Community Development Trends***

Fire hazard events may occur anywhere within the county, therefore future development is at risk.

## **4.4.7 Ground Failure Hazard**

### ***Hazard Definition for Subsidence***

Subsidence is a sinking of the land surface. In Illinois, subsidence is usually associated with either underground mining or sinkhole collapse. Analyzing detailed maps of geologic conditions or detailed mine maps can help identify areas at risk for subsidence. SIU compiled data sources from the Illinois Geologic Survey and Illinois Department of Natural Resources to assess the risk of subsidence in Vermilion County. This section provides an overview of the subsidence hazards in Illinois and a discussion of the potential subsidence risk for Vermilion County.

### ***Underground Mining and Subsidence***

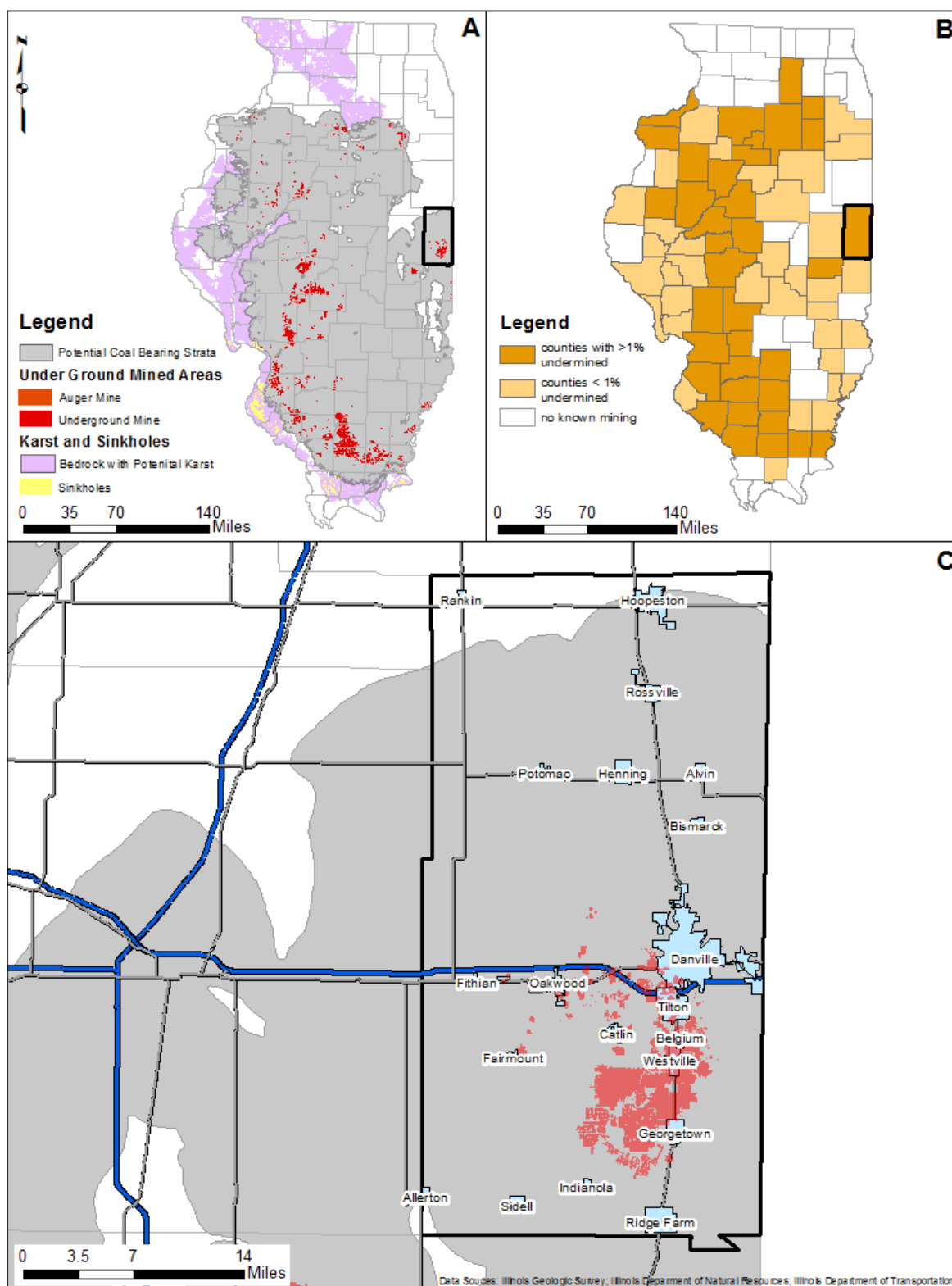
Illinoisans have extensively used underground mines to extract coal, lead, zinc, fluorites, shale, clay stones, limestone, and dolomite. When mining first began in Illinois, the sparsely populated land over mined areas translated to seldom structural damage if the ground subsided. As towns and cities expanded over mined-out areas, subsidence damage to structures became increasingly more common. The most common underground mines in Illinois are coal mines. A recent study found that approximately 333,100 housing units were located over or adjacent to coal mines in Illinois (Bauer, 2008).

Illinois has abundant coal resources. All or parts of 86 of 102 counties in the state have coal-bearing strata. As of 2007, approximately 1,050,400 acres (2.8%) of the state were mined. Of that total, 836,655 acres are underground mines (Bauer, 2008). Illinois ranks first among all U.S. states for reserves of bituminous coal (Illinois Coal Association, 1992).

Figure 4-20a shows the statewide distribution of bedrock with karst potential, coal bearing strata, sink holes, and underground mines. Figure 4-20b shows the counties which are 0, < 1%, and >1% undermined; Figure

4-20c shows the distribution of bedrock with karst potential, coal bearing strata, sink holes, and underground mines in Vermilion County.

**Figure 4-20: Statewide and Countywide Areas with Subsidence Hazard Profile**





### ***Mining Methods***

There are two fundamental underground mining methods used in Illinois: high-extraction methods, such as long-wall mining, and low-extraction such as room-and-pillar mining. High-extraction methods remove almost all of the coal in localized areas. State and federal authorities plan and regulate subsidence associated with high-extraction methods for modern mining practices. The subsurface subsides above the mine within several days or weeks after extracting the coal. Subsidence of the overburden above the mined-out area can continue up to seven years after subsurface removal, depending on the local geologic conditions (Bauer, 2008). The initial ground movements associated with this mining, which tend to be the largest, diminish rapidly after a few months. After subsidence has decreased to a level that no longer causes damage to structures, the land may be suitable for development. The maximum amount of subsidence is proportional to the amount of material extract and the depth between the mining and the surface. In general, over the centerline of the mine panel, subsidence can be 60% to 70% of the extract material (e.g., 10 ft of material extracted would cause a maximum subsidence of six to seven feet; Bauer, 2006).

For low-extraction techniques such as room-and-pillar mining, miners create openings (rooms) as they work. Enough of the coal layer is left behind in the pillars to support the ground surface. In Illinois, this system of mining extracts 40% to 55% of the coal resources in modern mines and up to 75% in some older mines. Based on current state regulations, room-and-pillar mines in operation after 1983 that do not include planned subsidence must show that they have a stable design. Although these permitting requirements have improved overall mine stability, there are no guarantees that subsidence will not occur above a room-and-pillar mine in the future. If coal or other mined resources have been removed from an area, subsidence of the overlying material is always a possibility (Bauer, 2006).

### ***Types of Mine Subsidence***

In Illinois, subsidence of the land surface related to underground mining can take two forms: pit subsidence or trough (sag) subsidence. Pit subsidence structures generally range from two to 40 feet in diameter. Pit subsidence mostly occurs over shallow mines that are <100 feet deep where the overlying bedrock is <50 feet thick and composed of weak rock materials, such as shale. The pit is produced when the mine roof collapses and the roof fall void works its way to the surface. These structures form rapidly. If the bedrock is only a few feet thick and the surface materials are unconsolidated (loose), these materials may fall into adjacent mine voids, producing a surface hole deeper than the height of the collapsed mine void. Pit subsidence can cause damage to a structure if it develops under the corner of a building, under a support post of a foundation, or in another critical location. Subsidence pits should be filled to ensure that people or animals do not fall into these structures (Bauer, 2006).

Trough subsidence forms a gentle depression over a broad area. Some trough subsidence may be as large as a whole mine panel (i.e., several hundred feet long and a few hundred feet wide). A single trough event or feature may affect several acres of land. As previously discussed, the maximum vertical settlement is 60% to 70% of the height of material removed (e.g., two to six feet). Significant troughs may develop suddenly, within a few hours or days, or gradually over a period of years. Troughs originate over places in mines where pillars have collapsed, producing downward movement at the ground surface. These failures can develop over mines of any depth. Trough subsidence produces an orderly pattern of tensile features (tension cracks) surrounding a central area of possible compression features. The type and extent of damage to surface structures relates to their orientation and position within a trough. In the tension zone, the downward-bending movements that develop in the ground may damage buildings, roads, sewer and water pipes, and other utilities. The downward bending of the ground surface causes the soil to crack, forming the tension cracks that pull structures apart. In the relatively smaller compression zone, roads may buckle and foundation walls may be pushed inward. Buildings damaged by compressional forces typically need their foundations rebuilt and may also need to be leveled due to differential settling (Bauer, 2006).

### ***Mine Subsidence Insurance***



The Mine Subsidence Insurance Act, as of 1979, created subsidence insurance as part of an Illinois homeowner's policy. Homeowners in any of the Illinois counties undermined by approximately 1% or more automatically have mine subsidence insurance as a part of their policy, unless they waive their coverage in writing. Mine subsidence insurance is especially important for homes located near to or over mines that operated before the 1977 Surface Mine Control and Reclamation Act. The companies that operated these mines may no longer be in business (Bauer, 2006).

### ***Mine Subsidence in Vermilion County***

Potential coal-bearing units underlay approximately 90% of Vermilion County. Analysis of the GIS data layer of active and abandoned coal mines in Illinois obtained from the Illinois Department of Natural Resources (ILDNR) revealed that 65 mi<sup>2</sup> of Vermilion County's total 901 mi<sup>2</sup> (~ 7.2%) area are undermined. The undermined areas are mainly located in the in the southeast quadrant of the county. Municipalities underlain at least in part by undermined areas include Danville, Tilton, Belgium, Westville, Georgetown, Catlin, Oakwood, Fairmount, and Fithian. Comparison of the GIS layer of parcels with structures attained from Vermilion County with IDNR GIS layer of active and abandoned underground-coal mines was performed. This analysis revealed that 3475 out of the 28,447 or ~12.2% of the buildings in the county were above undermined areas.

### ***Subsidence Related to Karst Features***

Subsidence can also occur on land located over soluble bedrock. The land over soluble bedrock is "karst" topography, and is characterized by evidence of past subsidence events. Karst terrain has unique landforms and hydrology found only in these areas. Bedrock in karst areas typically includes limestone, dolomite, or gypsum. In Illinois, limestone and dolomite (carbonate rocks) are the principle karst rock types; 9% of Illinois has carbonate rock types close enough to the ground surface to have a well-developed karst terrain. The area in Illinois where karst terrain is most developed is the southern and southwestern part of the state (Panno, et al., 1997).

### ***Sinkhole Formation***

The karst feature most associated with subsidence is the sinkhole. A sinkhole is an area of ground with no natural external surface drainage—when it rains, all of the water stays inside the sinkhole and typically drains into an interconnected subsurface karst system. Sinkholes can vary from a few feet to hundreds of acres, and from less than one to more than 100 feet deep. Typically, sinkholes form slowly, so that little change is seen during a lifetime, but they also can form suddenly when a collapse occurs. Such a collapse will damage any overlying structure and can have a dramatic effect if it occurs in a populated setting.

Sinkholes form where rainwater moves through the soil and encounters soluble bedrock. The bedrock begins to dissolve along horizontal and vertical fractures and joints in the rock. Eventually, these fractures and joints become large enough to start transporting small soil particles. As these small particles of soil are carried off, the surface of the soil above the conduit slump down gradually, and a small depression forms on the ground surface. This depression acts like a funnel and gathers more water, which makes the conduit still larger and washes more soil into it.

### ***Sinkhole Collapse***

Sudden collapse of a sinkhole occurs when rock and soil close to the ground surface does not gradually move down, but instead forms a bridge. Beneath that surface cover, a void forms. These voids are essentially shallow caves. Over time, the void enlarges enough that it can no longer support the weight of the overlying bridge. The surface layer then suddenly collapses into the void, forming a sinkhole.

The process of forming a void space usually takes decades or longer. However, human activities can expedite this natural process. Since sinkhole formation depends upon water dissolving rock, any human activity that increases runoff will expedite sinkhole formation. Parking lots, streets, altered drainage from construction, and roof drainage are a few of the things that can increase runoff.

Collapses occur most frequently after intense rainstorms. However, drought and altering of the water table can also contribute to sinkhole collapse. Areas with a fluctuating water table, especially one that has dropped quickly, are more susceptible to sinkhole collapse. It is also possible for construction activity to induce the collapse of near-surface voids or caves. In areas of karst bedrock, the community must conduct a proper geotechnical assessment prior to construction of any significant structures. Solutions to foundation problems in karst terrain are often expensive (White, 1988).

### ***Sinkhole Subsidence or Collapse Potential for Vermilion County***

Insoluble bedrock underlays none of Vermilion County, and therefore subsidence related to karstic bedrock should not be a concern.

### ***Hazard Extent for Ground Failure***

The extent of subsidence hazard in Vermilion County is a function of the distribution of development, the distribution of past and present underground mining, and the distribution of near-surface soluble bedrock such as limestone, dolomite, or halite.

### ***Risk Identification for Ground Failure Hazard***

Based on historical, geological, and mine information, future ground failure in undermined regions of Vermilion County is possible. According to the Vermilion County planning team's assessment, ground failure ranked as the number eight hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
1	x	1	=	1

### ***Vulnerability Analysis for Earthquake Hazard***

The existing buildings and infrastructure of Vermilion County are discussed in types and numbers in Table 4-9.

### ***Critical Facilities***

Any critical facility built above highly soluble bedrock or an underground mine could be vulnerable to land subsidence. A critical facility will encounter the same impacts as any other building within the affected area. These impacts include damages ranging from cosmetic to structural. Buildings may sustain minor cracks in walls due to a small amount of settling, while in more severe cases, the failure of building foundations can cause cracking of critical structural elements. Table 4-9 lists the essential facilities in the area. Appendices E and F include a list and a map of the critical facilities.

### ***Building Inventory***

Table 4-10 lists the building exposure in terms of types and numbers of buildings for the entire county. The buildings within this area can anticipate impacts similar to those discussed for critical facilities, ranging from cosmetic to structural. Buildings may sustain minor cracks in walls due to a small amount of settling, while in more severe cases, the failure of building foundations causes cracking of critical structural elements.

### ***Infrastructure***

Ground subsidence areas within Vermilion County could impact the roadways, utility lines/pipes, railroads, and bridges. The risk to these structures is primarily associated with land collapsing directly beneath them in a way that undermines their structural integrity. The impacts to these items include broken, failed, or

impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); and railway failure from broken or impassable railways. In addition, bridges could fail or become impassable to traffic.

### ***Vulnerability to Future Assets/Infrastructure for Ground Failure***

New buildings and infrastructure placed on undermined land or on highly soluble bedrock will be vulnerable to ground failure.

### ***Assessment of Community Development Trends***

Abandoned underground mine subsidence may or may not affect several locations within the county; therefore buildings and infrastructure are vulnerable to subsidence. Continued development will occur in many of these areas. Currently, Vermilion County reviews new development for compliance with the local zoning ordinance. Community planners should review the historical mining maps to minimize potential subsidence structural damage to new developments.

## **4.4.8 Earthquake Hazard**

### ***Hazard Definition***

An earthquake is a shaking of the earth caused by the energy released when large blocks of rock slip past each other in the earth's crust. Imagine pressing two sandpaper blocks firmly together and trying to slide them past one another; at first they don't move at all, but as you continue to work harder they slip past each other very quickly. Similarly, blocks of the earth's crust (tectonic plates) are very slowly trying to slide past each other. When they build up enough energy, they quickly slip past each other, generating an earthquake.

Most earthquakes occur at tectonic plate boundaries; however, some earthquakes occur in the middle of plates, for example the New Madrid Seismic Zone or the Wabash Valley Fault System. Both of these seismic areas have a geologic history of strong quakes, and an earthquake from either seismic area could possibly affect Illinois counties. There may be other, currently unidentified faults in the Midwest also capable of producing strong earthquakes.

Strong earthquakes can collapse buildings and infrastructure, disrupt utilities, and trigger landslides, avalanches, flash floods, fires, and tsunamis. When an earthquake occurs in a populated area, it may cause death, injury, and extensive property damage. An earthquake might damage essential facilities, such as fire departments, police departments, and hospitals, disrupting emergency response services in the affected area. Strong earthquakes may also require mass relocation; however, relocation may be impossible in the short-term aftermath of a significant event due to damaged transportation infrastructure and public communication systems.

Earthquakes are usually measured by two criteria: intensity and magnitude (M). Earthquake intensity qualitatively measures the strength of shaking produced by an earthquake at a certain location and is determined from effects on people, structures, and the natural environment. Earthquake magnitude quantitatively measures the energy released at the earthquake's subsurface source in the crust, or epicenter. SIU uses magnitude in the earthquake hazard analysis. Table 4-28 provides a comparison of magnitude and intensity, and Table 4-29 provides qualitative descriptions of intensity, for a sense of what a given magnitude might feel like.

Source: [http://earthquake.usgs.gov/learning/topics/mag\\_vs\\_int.php](http://earthquake.usgs.gov/learning/topics/mag_vs_int.php)

**Table 4-28:** Comparison of Earthquake Magnitude and Intensity

Magnitude (M)	Typical Maximum Modified Mercalli Intensity
1.0 – 3.0	I
3.0 – 3.9	II – III
4.0 – 4.9	IV – V
5.0 – 5.9	VI – VII
6.0 – 6.9	VII – IX
7.0 and higher	VIII or higher

**Table 4-29:** Abbreviated Modified Mercalli Intensity Scale

Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions.
II	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

### ***Previous Occurrences for Earthquakes***

Historically, the most significant seismic activity in Illinois is associated with New Madrid Seismic Zone. The New Madrid Seismic Zone produced three large earthquakes in the central U.S. with magnitudes estimated between 7.0 and 7.7 on December 16, 1811, January 23, 1812, and February 7, 1812. These earthquakes caused violent ground cracking and volcano-like eruptions of sediment (sand blows) over an area >10,500 km<sup>2</sup>, and uplifted a 50 km by 23 km zone (the Lake County uplift). The shaking was felt over a total area of over 10 million km<sup>2</sup> (the largest felt area of any historic earthquake). The United States Geological Survey (USGS) and the Center for Earthquake Research and Information (CERI) at the University of Memphis estimate the probability of a repeat of the 1811-1812 type earthquakes (M7.5-8.0) is 7%-10% over the next 50 years (USGS Fact Sheet 2006-3125).

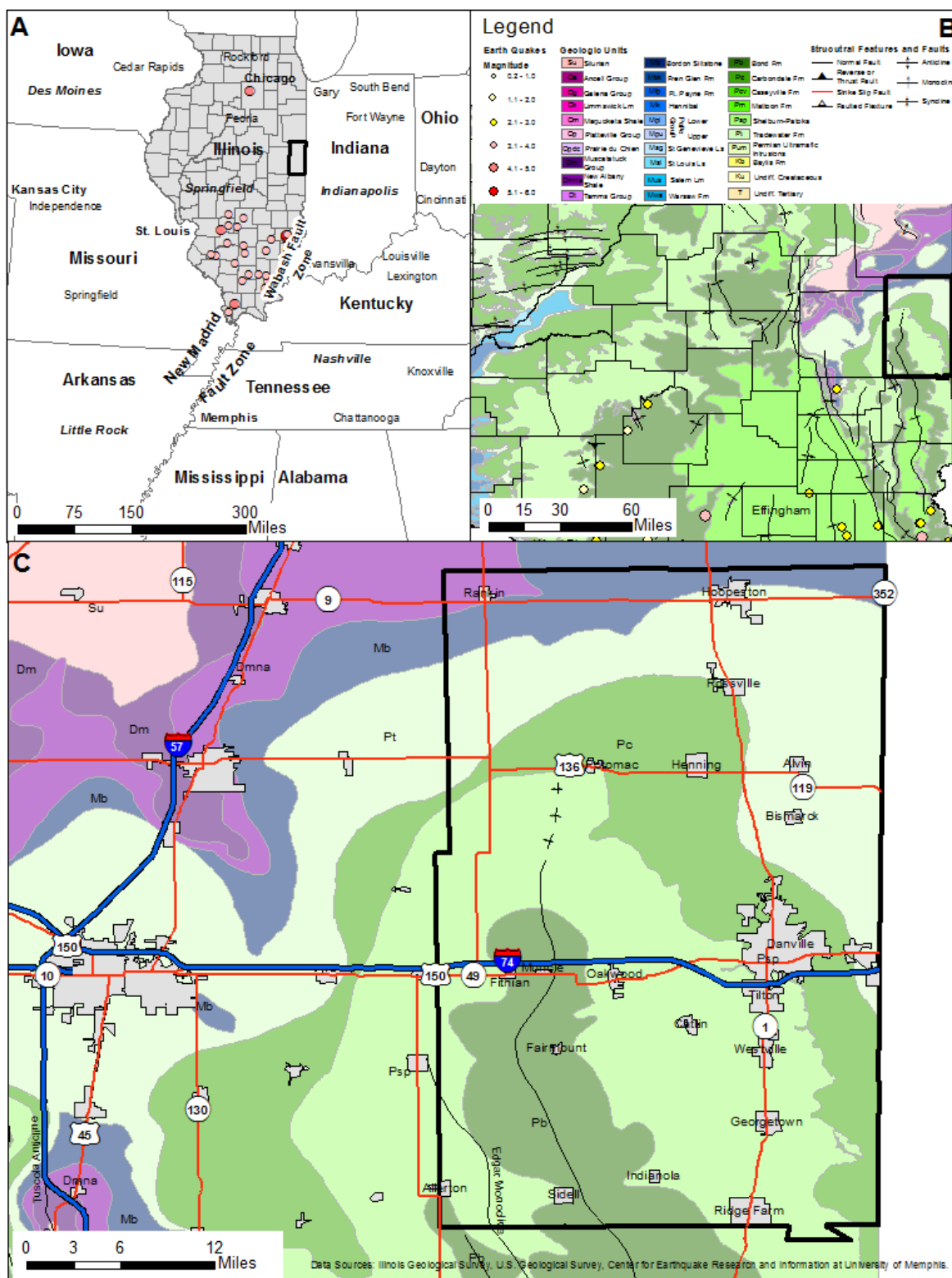
Earthquakes measured in Illinois typically vary in magnitude from very low microseismic events of  $M=1-3$  to larger events up to  $M=5.4$ . The most recent earthquake in Illinois—as of the date of this report—is a  $M2.1$  event on February, 2013 approximately four miles SW of Tamms, IL. The last earthquake in Illinois to cause minor damage occurred on April 18, 2008 near Mt. Carmel, IL and measured 5.2 in magnitude. Earthquakes resulting in more serious damage have occurred about every 70 to 90 years and are historically concentrated in southern Illinois.

### ***Geographic Location for Earthquake Hazard***

The two most significant zones of seismic activity in Illinois are the New Madrid Seismic Zone and the Wabash Valley Fault System. There are no earthquake epicenters recorded in Vermilion County. While large earthquakes ( $>M7.0$ ) experienced during the New Madrid Events of 1811 and 1812 are unlikely in Vermilion County, moderate earthquakes ( $\leq 6.0M$ ) in or in the vicinity of Vermilion County are probable. The USGS estimates the probability of a moderate  $M5.5$  earthquake occurring in Vermilion County within the next 500-years at approximately 12% (USGS 2009).

Figure 4-21 depicts the following: (A) location of notable earthquakes in Illinois region; (B) generalized geologic bedrock map with earthquake epicenters and geologic structures; (C) geologic and earthquake epicenter map of Vermilion County.

**Figure 4-21:** Recorded Earthquakes in the U.S. Midwest and Geology of Vermilion County





### ***Hazard Extent for Earthquake Hazard***

Earthquake effects are possible anywhere in Vermilion County. One of the most critical sources of information that is required for accurate assessment of earthquake risk is soils data. SIU used a National Earthquake Hazards Reduction Program (NEHRP) compliant soils map provided by FEMA for the analysis. The map identifies the soils most susceptible to failure.

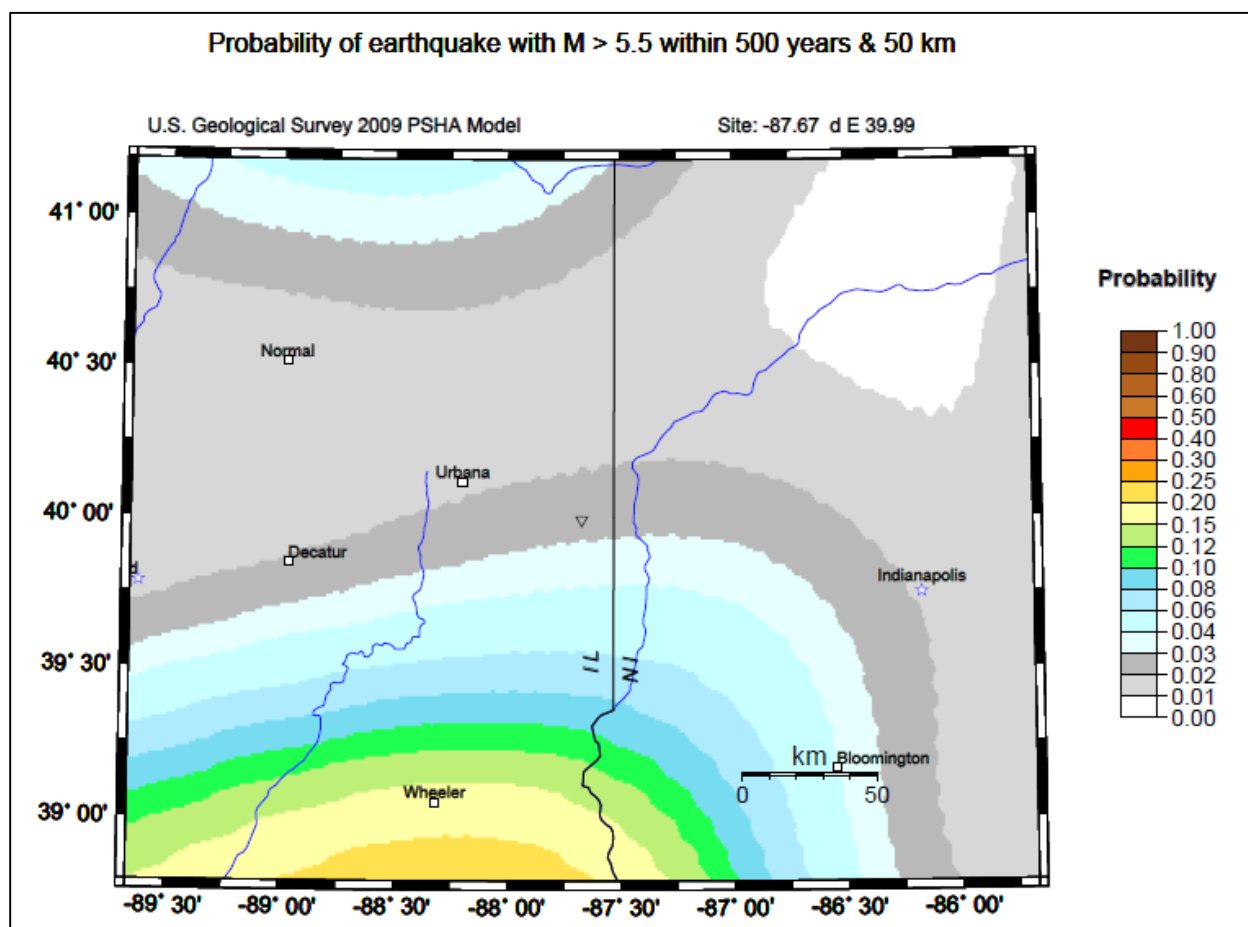
### ***Risk Identification for Earthquake Hazard***

Based on historical information and current USGS and SIU research and studies, future earthquakes in Vermilion County are possible, but large (>M7.0) earthquakes that cause catastrophic damage are unlikely. Figure 4-22 illustrates the probability of a M5.5 event occurring within the next 500 years in the Vermilion County region. According to the Vermilion County planning team's assessment, earthquakes are ranked as the number nine hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
1	x	1	=	1

**Figure 4-22:** USGS Probability Map for a M5.5 Earthquake Occurring in the Next 500 Years within Vermilion County





***Vulnerability Analysis for Earthquake Hazard***

Earthquakes could impact the entire county equally; therefore, the entire county's population and all buildings are vulnerable to an earthquake. To accommodate this risk, this plan considers all buildings located within the county as vulnerable.

***Critical Facilities***

All critical facilities are vulnerable to earthquakes. A critical facility would encounter many of the same impacts as any other building within the county. These impacts include structural failure and loss of facility functionality (e.g., a damaged police station cannot serve the community). Appendices E and F include a list and map of all critical facilities in Vermilion County.

***Building Inventory***

Table 4-10 displays the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can expect similar impacts to those discussed for critical facilities. These impacts include structural failure and loss of building function which could result in indirect impacts (e.g., damaged homes will no longer be habitable causing residents to seek shelter).

***Infrastructure***

During an earthquake, the types of infrastructure that shaking could impact include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available to SIU, it is important to emphasize that any number of these items could become damaged in the event of an earthquake. The impacts to these items include broken, failed, or impassable roadways, broken or failed utility lines (e.g., loss of power or gas to community), and railway failure from broken or impassable railways. Bridges could also fail or become impassable, causing risk to motorists.

***Hazus-MH Analyses for Four Earthquake Scenarios***

SIU reviewed existing geological information and recommendations from the planning team for earthquake scenarios. SIU ran a deterministic and a probabilistic earthquake scenario to provide a reasonable basis for earthquake planning in Vermilion County. The deterministic scenario was a Moment Magnitude of 5.5 with the epicenter located in Vermilion County near Georgetown. This represents a realistic scenario for planning purposes.

Additionally, the earthquake-loss analysis included a probabilistic scenario based on ground-shaking parameters derived from U.S. Geological Survey probabilistic seismic hazard curves for the earthquake with the 500-year return period. This scenario evaluates the average impacts of a multitude of possible earthquake epicenters with a magnitude typical of that expected for a 500-year return period.

The earthquake hazard modeling scenarios performed are:

- Magnitude 5.5 deterministic event near George, IL
- Magnitude 5.0 500-year probability event in Vermilion County
- Magnitude 7.1 deterministic event along the Wabash Valley Seismic Zone
- Magnitude 7.7 deterministic event along the New Madrid Seismic Zone

Modeling a deterministic scenario requires user input for a variety of parameters. One of the most critical sources of information required for accurate assessment of earthquake risk is soils data. SIU used a NEHRP soil classification map for Illinois in the analysis. NEHRP soil classifications portray the degree of shear-wave amplification that can occur during ground shaking. FEMA provided the soils map and liquefaction-potential map that is the default in Hazus-MH.

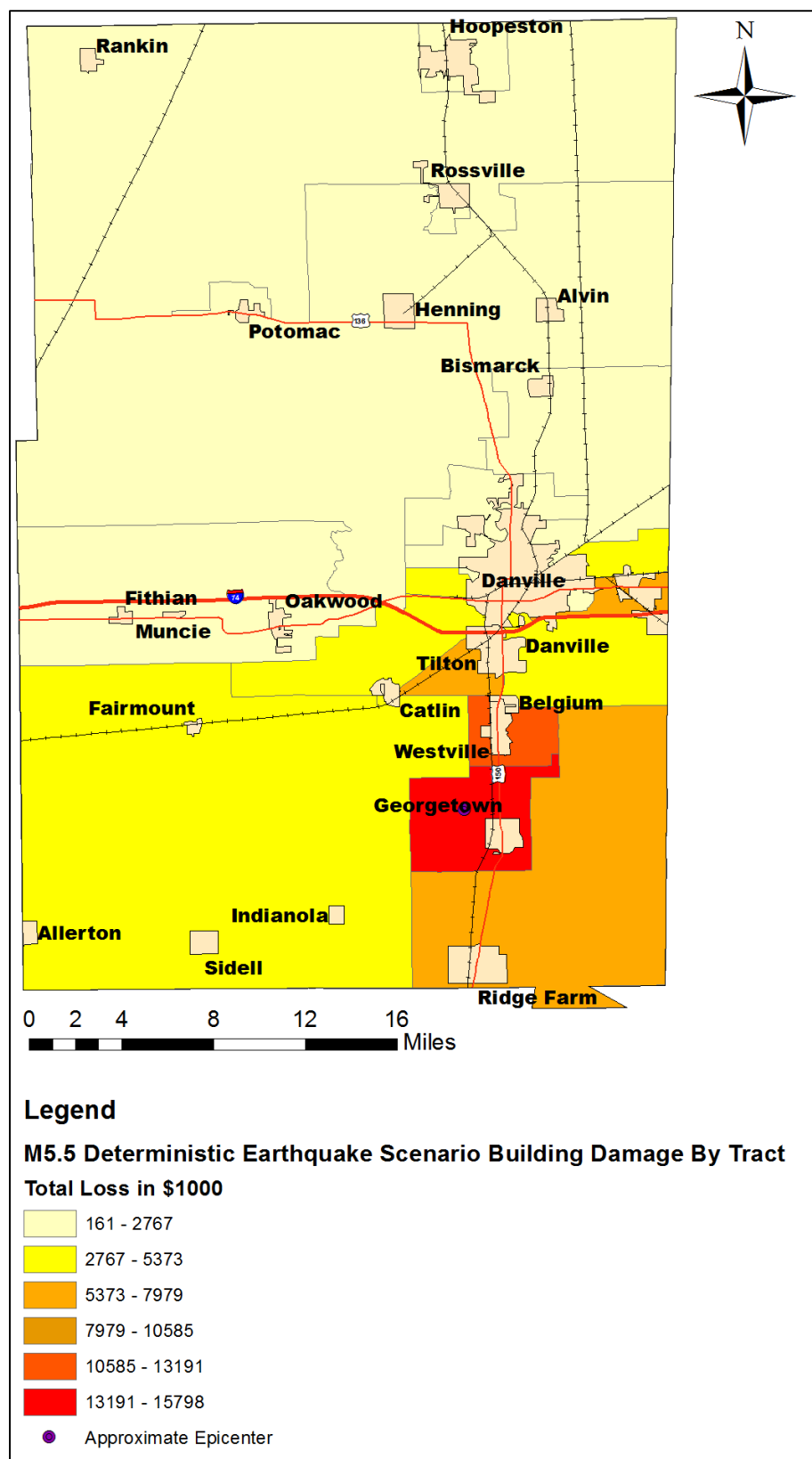
Earthquake hypocenter depths in Illinois range from less than 1.0 to ~25.0 km. The deterministic scenarios used the average hypocenter depth of ~10.0 km. For this scenario type, Hazus-MH requires the user to define an attenuation function. SIU used the Toro et al. (1997) attenuation function for the deterministic

earthquake scenario to maintain consistency with the USGS (2006) strong ground motion modeling in the central United States.

This report presents two types of building losses: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

***Results for M5.5 Deterministic Scenario – General Building Stock***

Figure 4-23 and Tables 4-30 and 4-31 show the results of the deterministic M5.5 earthquake scenario with an epicenter near Georgetown, IL. Hazus-MH estimates that approximately 1,688 buildings will be at least moderately damaged. This is more than 4% of the total number of buildings in the region. Hazus-MH estimates that the event would damage 26 building beyond repair. Total building-related losses totaled \$98.3 million; 14% of the estimated losses were related to the business interruption. The residential occupancy class sustained the largest loss, experiencing 63% of the total loss.

**Figure 4-23: 5.5 Magnitude Earthquake Scenario for Vermilion County**

**Table 4-30:** 5.5 Magnitude Earthquake Damage Estimates by Building Occupancy for Vermilion County

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	331	0.89	28	0.69	16	1.08	3	1.53	0	1.08
Commercial	1,439	3.87	140	3.49	66	4.56	13	5.76	1	4.36
Education	46	0.12	5	0.13	3	0.19	1	0.25	0	0.32
Government	69	0.19	6	0.14	3	0.18	0	0.20	0	0.23
Industrial	323	0.87	30	0.74	15	1.04	3	1.31	0	0.81
Other Residential	10,167	27.35	1,230	30.74	513	35.68	72	32.21	7	26.25
Religion	160	0.43	17	0.42	8	0.55	2	0.73	0	0.71
Single Family	24,641	66.28	2,547	63.65	815	56.71	131	58.01	18	66.23
<b>Total:</b>	<b>37,176</b>		<b>4,002</b>		<b>1,437</b>		<b>225</b>		<b>26</b>	

**Table 4-31:** 5.5 Magnitude Earthquake Estimates of Building Economic Losses (in millions of dollars)  
for Vermilion County

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
<b>Income Losses</b>							
	Wage	0.00	0.09	1.83	0.10	0.22	2.25
	Capital-Related	0.00	0.04	1.58	0.06	0.06	1.74
	Rental	1.13	0.61	1.00	0.04	0.08	2.85
	Relocation	4.18	0.71	1.50	0.17	0.75	7.30
	Subtotal:	5.30	1.44	5.91	0.37	1.11	14.14
<b>Capital Stock Losses</b>							
	Structural	5.90	1.13	1.97	0.46	0.91	10.37
	Non-Structural	26.79	7.15	8.00	2.86	3.37	48.17
	Content	12.15	2.36	5.64	2.19	2.46	24.80
	Inventory	0.00	0.00	0.23	0.53	0.06	0.82
	Subtotal:	44.83	10.65	15.84	6.04	6.80	84.16
	<b>Total:</b>	<b>\$50.14</b>	<b>\$12.09</b>	<b>\$21.75</b>	<b>\$6.42</b>	<b>\$7.91</b>	<b>\$98.30</b>

**Results for 500-Year Probabilistic Scenario – General Building Stock**

Tables 4-32 and 4-33 show the results of the 500-year probabilistic analysis. Hazus-MH estimates that the event would at least moderately damage approximately 356 buildings. This is more than 1% of the total number of buildings in the region. Hazus-MH estimates that the event would damage 3 buildings beyond repair. Building-related losses totaled \$12.9 million; 27% of the estimated losses were related to the business interruption of the region. The residential occupancy class sustained the largest loss, experiencing 57% of the total loss.

**Table 4-32:** 500-Year Probabilistic Earthquake Damage Estimates by Building Occupancy for Vermilion County

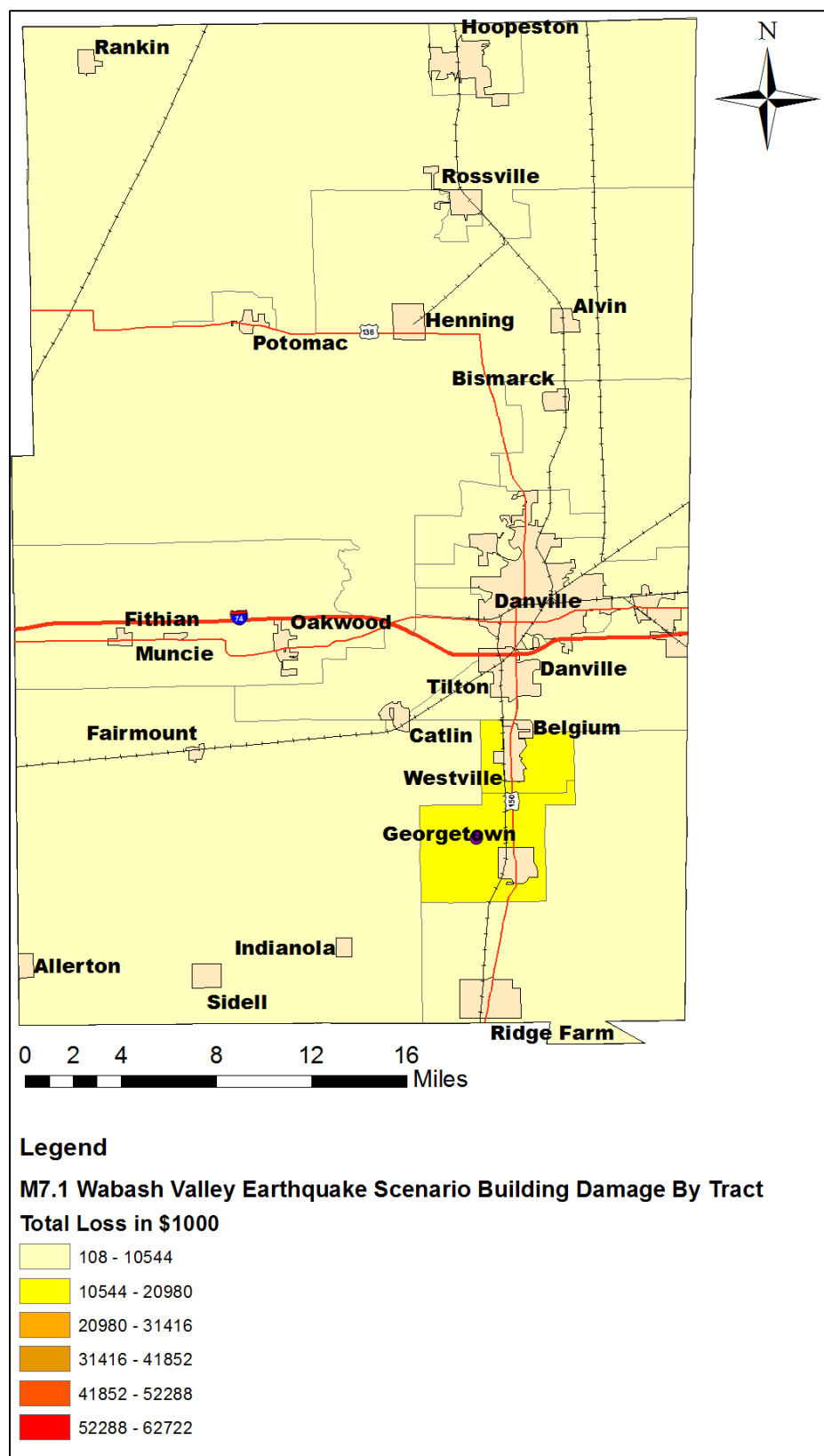
	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	359	0.87	14	1.07	5	1.61	1	2.02	0	1.17
Commercial	1,577	3.82	58	4.62	20	6.14	3	7.51	0	5.12
Education	51	0.12	2	0.16	1	0.21	0	0.26	0	0.32
Government	75	0.18	2	0.19	1	0.23	0	0.26	0	0.30
Industrial	353	0.85	13	1.04	5	1.46	1	1.76	0	0.92
Other Residential	11,471	27.81	395	31.31	113	35.51	9	27.59	1	23.99
Religion	178	0.43	7	0.54	2	0.73	0	0.92	0	0.85
Single Family	27,186	65.91	770	61.08	173	54.11	20	59.69	2	67.33
<b>Total:</b>	<b>41,249</b>		<b>1,261</b>		<b>319</b>		<b>34</b>		<b>3</b>	

**Table 4-33:** 500-Year Probabilistic Earthquake Estimates of Building Economic Losses (in Millions of Dollars) for Vermilion County

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
<b>Income Losses</b>							
	Wage	0.00	0.02	0.56	0.03	0.06	0.67
	Capital-Related	0.00	0.01	0.47	0.02	0.01	0.51
	Rental	0.22	0.15	0.30	0.01	0.02	0.70
	Relocation	0.80	0.15	0.44	0.05	0.18	1.61
	Subtotal:	1.02	0.33	1.76	0.11	0.27	3.50
	Structural	1.27	0.30	0.56	0.14	0.23	2.51
	Non-Structural	2.96	0.88	1.00	0.27	0.39	5.49
	Content	0.50	0.13	0.39	0.16	0.14	1.31
	Inventory	0.00	0.00	0.01	0.04	0.00	0.06
	Subtotal:	4.73	1.30	1.96	0.61	0.76	9.36
<b>Total:</b>		<b>\$5.74</b>	<b>\$1.64</b>	<b>\$3.72</b>	<b>\$0.72</b>	<b>\$1.03</b>	<b>\$12.86</b>

**Results for M7.1 Wabash Valley Scenario – General Building Stock**

Figure 4-24 and Tables 4-34 and 4-35 show the results of the deterministic M7.1 Wabash Valley Seismic Zone scenario. Hazus-MH estimates that approximately 590 buildings will be at least moderately damaged. This is more than 1% of the total number of buildings in the region. Hazus-MH estimates that the event would damage 69 buildings beyond repair. Total building-related losses totaled \$91.7 million; 10% of the estimated losses were related to the business interruption. The residential occupancy class sustained the largest loss, experiencing 62% of the total loss.

**Figure 4-24: 7.1 Magnitude Wabash Valley Earthquake Scenario for Vermilion County**

**Table 4-34:** 7.1 Magnitude Earthquake Damage Estimates by Building Occupancy for Vermilion County

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	338	0.82	29	2.26	8	3.46	2	0.74	0	0.66
Commercial	1,578	3.85	49	3.76	14	5.90	14	4.99	3	4.94
Education	50	0.12	2	0.19	1	0.26	0	0.18	0	0.17
Government	73	0.18	3	0.25	1	0.32	1	0.18	0	0.17
Industrial	348	0.85	14	1.09	4	1.79	3	1.24	1	1.22
Other Residential	11,379	27.77	450	34.66	81	34.06	63	22.38	15	22.28
Religion	175	0.43	8	0.59	2	0.80	2	0.57	0	0.56
Single Family	27,036	65.98	742	57.19	128	53.43	197	69.73	49	70.00
<b>Total:</b>	<b>40,978</b>		<b>1,297</b>		<b>239</b>		<b>282</b>		<b>69</b>	

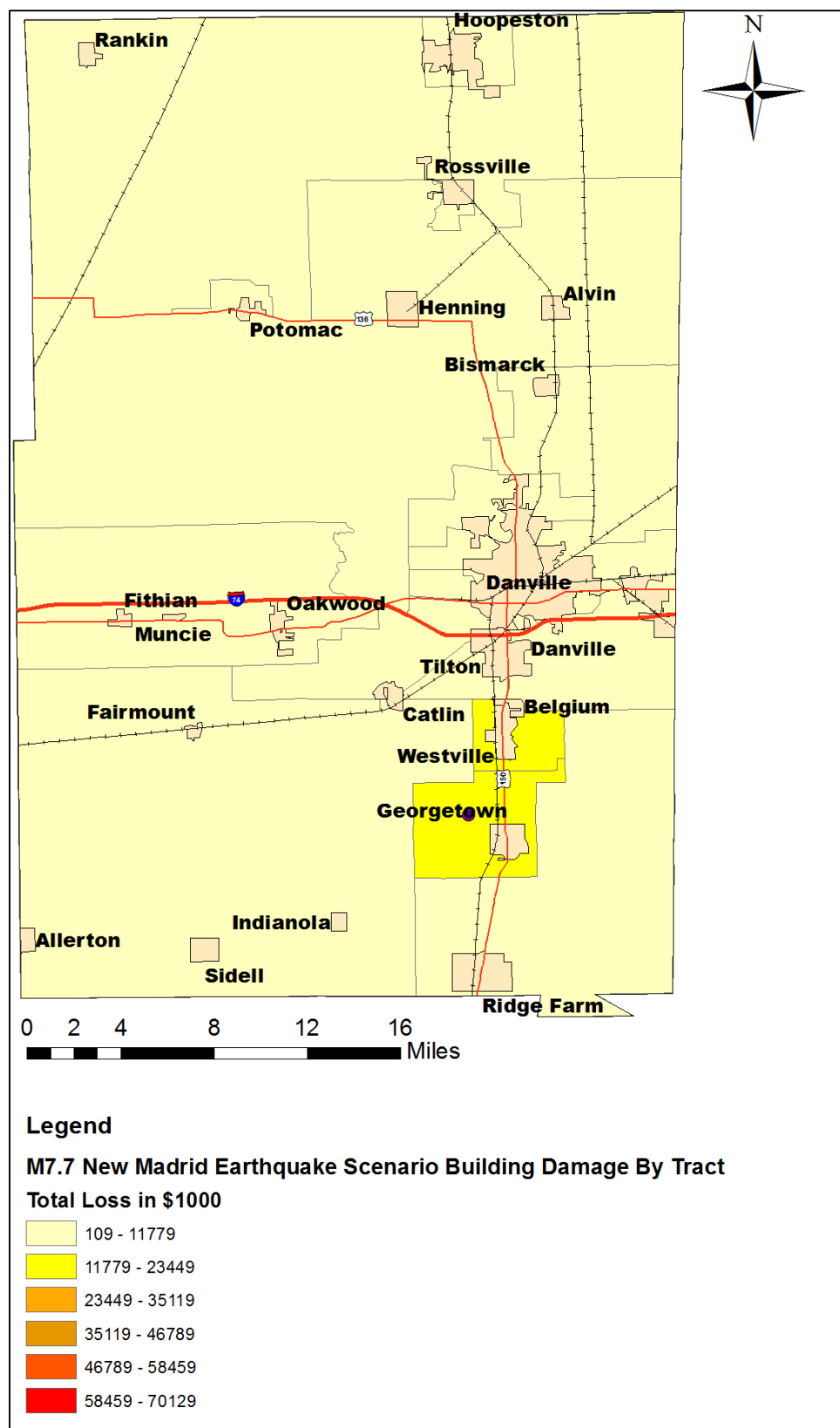
**Table 4-35:** 7.1 Magnitude Earthquake Estimates of Building Economic Losses (in Millions of Dollars)  
for Vermilion County

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
<b>Income Losses</b>							
	Wage	0.00	0.05	1.58	0.05	0.12	1.80
	Capital-Related	0.00	0.02	1.01	0.03	0.03	1.09
	Rental	0.81	0.64	0.50	0.02	0.04	2.00
	Relocation	2.75	0.38	1.05	0.07	0.37	4.62
	Subtotal:	3.56	1.10	4.12	0.18	0.56	9.52
	Structural	4.49	1.19	1.18	0.27	0.53	7.67
	Non-Structural	22.71	8.79	9.20	2.95	3.05	46.71
	Content	11.17	3.17	7.34	2.37	2.47	26.52
	Inventory	0.00	0.00	0.19	0.58	0.09	0.85
	Subtotal:	38.38	13.15	17.91	6.17	6.14	81.75
<b>Total:</b>		<b>\$41.94</b>	<b>\$14.25</b>	<b>\$22.03</b>	<b>\$6.35</b>	<b>\$6.70</b>	<b>\$91.27</b>

**Results for M7.7 New Madrid Scenario – General Building Stock**

Figure 4-25 and Tables 4-36 and 4-37 show the results of the deterministic M7.7 New Madrid Seismic Zone scenario. Hazus-MH estimates that approximately 22 buildings will be at least moderately damaged. Hazus-MH estimates that the event would damage no building beyond repair. Total building-related losses totaled \$4.9 million; 5% of the estimated losses were related to the business interruption. The residential occupancy class sustained the largest loss, experiencing 47% of the total loss.



**Figure 4-25: 7.7 Magnitude New Madrid Earthquake Scenario for Vermilion County**

**Table 4-36: 7.7 Magnitude Earthquake Damage Estimates by Building Occupancy for Vermilion County**

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	373	0.88	4	1.29	0	2.06	0	2.13	0	0.00
Commercial	1,638	3.86	18	5.17	2	7.79	0	8.10	0	0.00
Education	53	0.13	1	0.19	0	0.22	0	0.30	0	0.00
Government	77	0.18	1	0.23	0	0.30	0	0.39	0	0.00
Industrial	366	0.86	4	1.19	0	1.96	0	1.84	0	0.00
Other Residential	11,837	27.85	142	41.04	10	45.70	0	22.26	0	0.00
Religion	185	0.43	2	0.60	0	0.76	0	0.98	0	0.00
Single Family	27,968	65.81	174	50.30	9	41.19	0	63.99	0	0.00
<b>Total:</b>	<b>42,498</b>		<b>346</b>		<b>22</b>		<b>0</b>		<b>0</b>	

**Table 4-37: 7.7 Magnitude Earthquake Estimates of Building Economic Losses (in Millions of Dollars) for Vermilion County**

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
<b>Income Losses</b>							
	Wage	0.00	0.00	0.04	0.00	0.01	0.06
	Capital-Related	0.00	0.00	0.04	0.00	0.00	0.04
	Rental	0.01	0.01	0.04	0.00	0.00	0.07
	Relocation	0.03	0.01	0.03	0.00	0.01	0.09
	Subtotal:	0.05	0.03	0.15	0.01	0.02	0.25
	Structural	0.13	0.04	0.07	0.02	0.03	0.28
	Non-Structural	0.98	0.40	0.71	0.32	0.23	2.64
	Content	0.56	0.15	0.53	0.24	0.18	1.66
	Inventory	0.00	0.00	0.02	0.06	0.01	0.09
	Subtotal:	1.67	0.59	1.33	0.63	0.45	4.66
<b>Total:</b>		<b>\$1.71</b>	<b>\$0.61</b>	<b>\$1.48</b>	<b>\$0.64</b>	<b>\$0.47</b>	<b>\$4.92</b>

***Vulnerability to Future Assets/Infrastructure for Earthquake Hazard***

New construction, especially critical facilities, should accommodate earthquake mitigation design standards.

***Suggestions for Community Development Trends***

Community development should occur outside of the low-lying areas in floodplains with a water table within five feet of grade that is susceptible to liquefaction.

At Meeting 4, the MHMP team discussed specific mitigation strategies for reducing earthquake hazard. The discussion included strategies to harden and protect future and existing structures against the possible termination of public services and systems including power lines, water and sanitary lines, and public communication (see Section 5).

#### 4.4.9 Thunderstorm Hazard

##### *Hazard Definition – Thunderstorm*

Severe thunderstorms are weather events with one or more of the following characteristics: strong winds, large and damaging hail, and frequent lightning. Severe thunderstorms most frequently occur in Illinois during the spring and summer months, but can occur at any time. A severe thunderstorm's impacts can be localized or can be widespread in nature. A thunderstorm is classified as severe when it meets one or more of the following criteria:

- Hail 0.75 inches or greater in diameter
- Frequent and dangerous lightning
- Wind speeds greater than or equal to 58 miles per hour

##### *Hail*

Hail is a possible product of a strong thunderstorm. Hail usually falls near the center of a storm, but strong winds occurring at high altitudes in the thunderstorm can blow the hailstones away from the storm center, resulting in damage in other areas near the storm. Hailstones range from pea-sized to baseball-sized, and some reports note hailstones larger than softballs.

##### *Lightning*

Lightning is a discharge of electricity from a thunderstorm. Lightning is often perceived as a minor hazard, but lightning damages many structures and kills or severely injures numerous people in the United States each year.

##### *Severe Winds (Straight-Line Winds)*

Straight-line winds from thunderstorms are fairly common in Illinois. Straight-line winds can cause damage to homes, businesses, power lines, and agricultural areas, and may require temporary sheltering of individuals who are without power for extended periods of time.

##### *Previous Occurrences for Thunderstorm Hazard*

The NCDC database reported 121 hailstorms in Vermilion County since 1965. Hailstorms occur nearly every year in the late spring and early summer months. The most recent reported occurrence was on September of 2012, when a cold front trailing southward from a low-pressure system triggered strong to severe thunderstorms and produced hail. This thunderstorm event attributed to no property losses, crop losses, deaths or injuries in Vermilion County.

Table 4-38 identifies NCDC-recorded hailstorms that caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-38:** NCDC-Recorded Hail Storms That Caused Damage, Death, or Injury in Vermilion County

Location or County*	Date	Deaths	Injuries	Property Damage (millions of dollars)	Crop Damage (x \$1000)
Central Illinois		0	0	\$0.001	\$0
Central Illinois		0	0	\$4	\$0
Central Illinois		0	0	\$0.06	\$0
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>\$4.061</b>	<b>\$0</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

The NCDC database reported four lightning strikes in Vermilion County since 1994. The most recent reported occurrence was in March of 2012, when isolated thunderstorms impacted east-central Illinois during the morning. Lightning struck a power pole, knocking down power lines across a road in Danville.

Table 4-39 identifies NCDC-recorded lightning strikes that caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-39: NCDC-Recorded Lightning Strikes That Caused Damage, Death, or Injury in Vermilion County**

Location or County*	Date	Deaths	Injuries	Property Damage (x \$1000)	Crop Damage (x \$1000)
Danville	03/18/2012	0	0	\$2	\$0
Danville	03/18/2012	0	0	\$2	\$0
Danville	03/18/2012	0	0	\$2	\$0
Danville	05/24/1994	0	0	\$0	\$0
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>\$6</b>	<b>\$0</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

The NCDC database includes 13 wind storms reported since 1996. The most recent event was in 2012 when a low-pressure system tracking through the Upper Midwest into the Great Lakes produced very strong winds across central Illinois during the afternoon. Winds gusted between 45 and 55 mph at times, causing minor wind damage.

Table 4-40 identifies NCDC-recorded wind storms that caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-40: NCDC-Recorded Wind Storms That Caused Damage, Death, or Injury in Vermilion County**

Location or County*	Date	Deaths	Injuries	Property Damage (x \$1000)	Crop Damage (x \$1000)
Central Illinois	04/30/97	0	1	38	\$0
Central Illinois	09/29/97	0	0	0	\$0
Central Illinois	11/10/98	0	1	60	\$0
Central Illinois	11/24/04	0	0	0	\$0
Central Illinois	02/11/09	0	0	0	\$0
Central Illinois	02/11/09	0	0	0	\$0
Central Illinois	03/08/09	0	0	0	\$0
Central Illinois	10/26/10	0	0	10	\$0
Central Illinois	04/03/11	0	0	0.5	\$0
Central Illinois	02/29/12	0	0	1	\$0
<b>Total:</b>		<b>0</b>	<b>2</b>	<b>\$109.5</b>	<b>\$0</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

The NCDC database includes 169 thunderstorms reported since 1955. The most recent event was in September 2012 when a low pressure system moving across central Illinois triggered scattered showers and

thunderstorms during the afternoon. A few of the cells produced gusty winds and hail up to the size of quarters.

Table 4-41 shows that thunderstorms occur year-round with the greatest frequency and damage between May and July. The following table includes NCDC-recorded thunder storms that have caused damage, death, or injury in Vermilion County. Additional details of individual hazard events are on the [NCDC website](#).

**Table 4-41:** NCDC-Recorded Thunderstorms That Caused Damage, Death, or Injury in Vermilion County

Location or County*	Date	Deaths	Injuries	Property Damage (x \$1000)	Crop Damage (x \$1000)
Danville	5/2/2008	0	0	5	0
Hoopeston	5/30/2008	0	0	0	0
Danville	6/3/2008	0	0	30	0
Catlin	6/13/2008	0	0	15	0
Hoopeston	6/15/2008	0	0	35	0
Danville	7/20/2008	0	0	15	0
Ridge Farm	7/20/2008	0	0	15	0
Georgetown	7/20/2008	0	0	15	0
Catlin	7/20/2008	0	0	22	0
Danville	7/21/2008	0	0	2	0
Sidell	7/21/2008	0	0	8	0
Allerton	7/21/2008	0	0	20	0
Danville	8/5/2008	0	0	20	0
Hoopeston	8/5/2008	0	0	50	0
Hoopeston	3/8/2009	0	0	10	0
Rossville	3/8/2009	0	0	25	0
Fairmount	5/13/2009	0	0	3	0
Rankin	5/13/2009	0	0	7	0
Hoopeston	5/13/2009	0	0	40	0
Hoopeston	6/1/2009	0	0	8	0
Oakwood	6/19/2009	0	0	0	0
Danville	6/19/2009	0	0	35	0
Sidell	6/19/2009	0	0	40	0
Indianola	6/19/2009	0	0	60	0
Westville	6/19/2009	0	0	70	0
Oakwood	6/19/2009	0	0	205	0
Central Park	6/19/2009	0	0	400	0
Danville	8/4/2009	0	0	0	0
Georgetown	8/4/2009	0	0	0	0
Catlin	8/4/2009	0	0	10	0
Hoopeston	8/4/2009	0	0	25	0
Steelton	6/14/2010	0	0	2	0
Hoopeston	6/18/2010	0	0	8	30
Ridge Farm	6/21/2010	0	0	0	0
Danville	6/21/2010	0	0	2	0
Georgetown	6/21/2010	0	0	10	0
Tilton	6/21/2010	0	0	12	0
Westville	6/21/2010	0	0	15	0

Location or County*	Date	Deaths	Injuries	Property Damage (x \$1000)	Crop Damage (x \$1000)
Danville	6/21/2010	0	0	25	0
Danville	8/4/2010	0	0	30	0
Hoopeston	4/19/2011	0	0	20	0
Rossville	4/19/2011	0	0	35	0
Henning	4/19/2011	0	0	100	0
Georgetown	6/4/2011	0	0	2	0
Danville	6/4/2011	0	0	10	0
Indianola	6/4/2011	0	0	18	0
Danville	6/4/2011	0	0	20	0
Tilton	6/4/2011	0	0	40	0
Indianola	6/10/2011	0	0	10	0
Georgetown	6/21/2011	0	0	20	0
Indianola	6/21/2011	0	0	20	0
Danville	6/21/2011	0	0	35	0
Oakwood	7/2/2011	0	0	10	0
Georgetown	7/2/2011	0	0	30	0
Potomac	7/7/2011	0	0	8	0
Ridge Farm	3/23/2012	0	0	2	0
Ridge Farm	3/23/2012	0	0	2	0
Ridge Farm	3/23/2012	0	0	2	0
Ridge Farm	3/23/2012	0	0	9	0
Ridge Farm	3/23/2012	0	0	9	0
Ridge Farm	3/23/2012	0	0	9	0
Newell	5/6/2012	0	0	2	0
Hoopeston	5/6/2012	0	0	12	0
Danville	7/18/2012	0	0	3	0
Hegeler	7/25/2012	0	0	25	0
Ridge Farm	9/21/2012	0	0	9	0
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>\$1756</b>	<b>\$30</b>

\*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

### ***Geographic Location of Thunderstorm Hazard***

The entire county has the same risk for occurrence of thunderstorms. They can occur at any location within the county.

### ***Hazard Extent for Thunderstorm Hazard***

The extent of the historical thunderstorms depends upon the extent of the storm, the wind speed, and the size of hail stones. Thunderstorms can occur at any location within the county.

### ***Risk Identification for Thunderstorm Hazard***

Based on historical information, the occurrence of future high winds, hail, and lightning is likely. The county should expect high winds, hail, and lightning of widely varying magnitudes in the future. According to the RPI, thunderstorms and high wind damage ranked as the number four hazard.

RPI = Probability x Magnitude/Severity.

Probability	x	Magnitude/Severity	=	RPI
4	x	2	=	8

***Vulnerability Analysis for Thunderstorm Hazard***

The entire county's population and all buildings are vulnerable to a severe thunderstorm and can expect the same impacts within the affected area. This plan will therefore consider all buildings located within the county as vulnerable. Table 4-9 and 4-10 show the existing buildings and infrastructure in Vermilion County.

***Critical Facilities***

All critical facilities are vulnerable to severe thunderstorms. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g., a damaged police station cannot serve the community). Table 4-9 lists the types and numbers of all of the essential facilities in the area. Appendices E and F include a list and map of all critical facilities in Vermilion County.

***Building Inventory***

Table 4-10 displays the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can expect impacts similar to those discussed for critical facilities. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g., a person cannot inhabit a damaged home, causing residents to seek shelter).

***Infrastructure***

A severe thunderstorm could impact roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is vulnerable, it is important to emphasize that a severe thunderstorm could damage any number of these structures. The impacts to these structures include broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); or impassable railways. Bridges could become impassable causing risk to motorists.

***Potential Dollar Losses for Thunderstorm Hazard***

SIU determined that Vermilion County has incurred \$3.5 million in damages relating to thunderstorms, including hail, lightning, and high winds since 1955. NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event. As a result, SIU cannot reliably constrain potential dollar losses for a future event; however, based on average property damage in the past decade, SIU estimates that Vermilion County incurs property damages of approximately \$63,000 per year related to severe thunderstorms.

***Vulnerability to Future Assets/Infrastructure for Thunderstorm Hazard***

All future development within the county and all communities will remain vulnerable to these events.

***Suggestions for Community Development Trends***

Local officials will enhance severe storm preparedness if they sponsor a wide range of programs and initiatives to address the overall safety of county residents. The county needs to build new structures with more sturdy construction, and harden existing structures to lessen the potential impacts of severe weather. Building more warning sirens will warn the community of approaching storms to ensure the safety of Vermilion County residents.

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## Section 5 Mitigation Strategies

### 5.1 Community Capability Assessment

The goal of mitigation is to reduce the future impacts of a hazard, including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. Overall, mitigation strategies attempt to build disaster-resistant communities. Mitigation actions and projects are necessarily based on a well-constructed risk assessment (Section 4). Mitigation is an ongoing process that adapts over time to accommodate a community's needs.

#### 5.1.1 National Flood Insurance Program (NFIP)

Allerton, Bismarck, Catlin, Danville, Fairmount, Georgetown, Hoopeston, Muncie, Oakwood, Potomac, and Rankin of Vermilion County participate in the NFIP. Communities with a flood risk who choose not to participate in the NFIP include Alvin, Belgium, Indianola, Rossville, and Tilton. Vermilion County will continue to educate these jurisdictions on the benefits of the program. Table 5-1 includes a summary of additional information for Vermilion County participation in the NFIP.

The county and incorporated areas do not participate in the NFIP's Community Rating System (CRS). The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

**Table 5-1:** Information on Communities in Vermilion County Participating in the NFIP

Community	Participation Date	FIRM Date	CRS Date	CRS Rating	Floodplain Ordinance
Vermilion County	06/01/1995	05/16/2012	-	-	05/08/2012
Allerton	05/16/2012	NSFHA	-	-	-
Bismarck	05/16/2012	NSFHA	-	-	-
Catlin	09/04/1985	05/05/2012	-	-	-
Danville	07/18/1983	05/16/2012	-	-	-
Fairmount	05/16/2012	NSFHA	-	-	-
Georgetown	02/11/1976	05/16/2012	-	-	-
Hoopeston	07/03/1985	05/16/2012	-	-	-
Muncie	01/30/1995	05/16/2012	-	-	01/30/1995
Oakwood	05/16/2012	NSFHA	-	-	-
Potomac	09/18/1985	05/16/2012	-	-	-
Rankin	09/18/1985	05/16/2012	-	-	-
Westville	08/19/1985	05/16/2012	-	-	-

\*NFIP status and information are documented in the Community Status Book Report updated on 06/15/2012. No Special Flood Hazard Areas - NSFHA.

Since the establishment of the NFIP in 1978, Vermilion County had thirty-six flood insurance claims. Table 5-2 summarizes the claims since 1978.

**Table 5-2:** Policy and Claim Statistics for Flood Insurance in Vermilion County, IL

Community	Closed Losses	Open Losses	CWOP Losses	Total Losses	Payments
Vermilion County	31	0	5	36	\$792,734.12
Danville	24	0	7	31	\$440,179.21

Community	Closed Losses	Open Losses	CWOP Losses	Total Losses	Payments
Georgetown	1	0	0	1	\$2,422.79
Hoopeston	2	0	0	2	\$28,095.50
Potomac	1	0	0	1	\$0.00

\*NFIP policy and claim statistics since 1978 until the most recently updated date of 12/31/2013. Closed Losses refer to losses that are paid; open losses are losses that are not paid in full; CWOP losses are losses that are closed without payment; and total losses refers to all losses submitted regardless of status. Lastly, total payments refer to the total amount paid on losses.

### 5.1.2 Jurisdiction Ordinances

Ordinances that directly pertain, or can pertain, to disaster mitigation are listed in Table 5-3 and are discussed in more detail, if information was provided, in this section.

**Table 5-3:** Vermilion County's Jurisdiction Ordinances and Most Recent Adoption Date

Community Name	Zoning	Storm water Mgmt	Subdivision Control	Burning	Seismic	Erosion Mgmt	Land Use Plan	Building Codes
Vermilion County	-	-	-	-	-	-	-	-
Allerton	-	-	-	-	-	-	-	-
Alvin	-	-	-	-	-	-	-	-
Belgium	-	-	-	-	-	-	-	-
Bismarck	-	-	-	-	-	-	-	-
Catlin	-	-	-	-	-	-	-	-
Danville	12/2/08	4/20/93	12/17/02	3/2/04	-	-	10/3/06	3/2/04
Fairmount	-	-	-	-	-	-	-	-
Fithian	-	-	-	7/11/98	-	-	-	-
Georgetown	-	-	-	-	-	-	-	-
Henning	-	-	-	-	-	-	-	-
Hoopeston	1980	1980	1980	1980	-	1980	1980	1980
Indianola	-	-	-	-	-	-	-	-
Muncie	-	4/2/12	-	03/2014	-	4/2/12	-	-
Oakwood	-	-	-	-	-	-	-	-
Potomac	-	-	-	-	-	-	-	-
Rankin	-	-	-	-	-	-	7/26/10	-
Ridge Farm	-	-	-	-	-	-	-	-
Rossville	-	-	-	-	-	-	-	-
Sidell	12/10/09	-	-	8/12/12	-	-	-	-
Tilton	-	-	-	-	-	-	-	-
Westville	-	-	-	-	-	-	-	-

### 5.1.3 Fire Insurance Ratings

Table 5-4 lists Vermilion County's fire departments and respective information.

**Table 5-4:** Fire Departments, Their Insurance Ratings, and Number of Employees/Volunteers

Fire Department Name	Fire Insurance Rating	Number of Employees
Allerton Fire Protection District	8/10	15
Bismarck Community Fire Protection District	6/8B	32
Catlin Fire Protection District	5/9	25

Fire Department Name	Fire Insurance Rating	Number of Employees
Danville Fire District	4	52
Fairmount Fire Department	7/9	17
Fithian-Muncie-Collison Fire Protection District	9	12
Georgetown Fire Protection District	5/9	19
Hoopeston Fire Department	4/7	18
Kickapoo Fire Protection District	7/9	25
Rankin Fire Protection District	7/9	29
Ridge Farm Fire Protection District	6/10	17
Rossville Fire Protection District	5/9	21
Sidell Fire and Rescue	6	16
Tilton Fire and Ambulance	6/10	17
Westville Area Fire Protection District	5	20

## 5.2 Mitigation Goals

In Section 4 of this plan, the risk assessment identified Vermilion County as prone to several hazards. The mitigation planning team members understand that although they cannot eliminate hazards altogether, Vermilion County can work towards building disaster-resistant communities. Below is a generalized list of goals, objectives, and actions. The goals represent long-term, broad visions of the overall vision the county would like to achieve for mitigation. The objectives are strategies and steps that will assist the communities in attaining the listed goals.

### Goal 1: Lessen the impacts of hazards to new and existing infrastructure

- (a) Objective: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
- (b) Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.
- (c) Objective: Minimize the amount of infrastructure exposed to hazards.
- (d) Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.
- (e) Objective: Improve emergency sheltering in Vermilion County.

### Goal 2: Create new or revise existing plans/maps for Vermilion County

- (a) Objective: Support compliance with the NFIP for each jurisdiction in Vermilion County.
- (b) Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
- (c) Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.

### Goal 3: Develop long-term strategies to educate Vermilion County residents on the hazards affecting their county

- (a) Objective: Raise public awareness on hazard mitigation.

- (b) Objective: Improve education and training of emergency personnel and public officials.

### 5.3 Mitigation Actions/Plans

Upon completion of the risk assessment and development of the goals and objectives, the mitigation planning committee reviewed a list of the six mitigation measure categories from the FEMA State and Local Mitigation Planning How-to Guides. The measures are listed as follows:

- **Prevention:** Government, administrative, or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard or removal from the hazard area. Examples include acquisition, elevation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.
- **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream-corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.
- **Structural Projects:** Actions that involve the construction of structures to reduce the impacts of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

After Meeting 3, held on April 30, 2013, the mitigation planning team was presented with the task of individually listing potential mitigation activities using the FEMA evaluation criteria. The planning team brought their mitigation ideas to Meeting 4, two separate meetings were held on July 31, 2013 and January 29, 2014 to accommodate various schedules. FEMA uses their evaluation criteria STAPLE+E (stands for social, technical, administrative, political, legal, economic and environmental) to assess the developed mitigation strategies.

#### Social:

- Will the proposed action adversely affect one segment of the population?
- Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?

#### Technical:

- How effective is the action in avoiding or reducing future losses?
- Will it create more problems than it solves?
- Does it solve the problem or only a symptom?
- Does the mitigation strategy address continued compliance with the NFIP?

#### Administrative:

- Does the jurisdiction have the capability (staff, technical experts, and/or funding) to implement the action, or can it be readily obtained?

- Can the community provide the necessary maintenance?
- Can it be accomplished in a timely manner?

**Political:**

- Is there political support to implement and maintain this action?
- Is there a local champion willing to help see the action to completion?
- Is there enough public support to ensure the success of the action?
- How can the mitigation objectives be accomplished at the lowest cost to the public?

**Legal:**

- Does the community have the authority to implement the proposed action?
- Are the proper laws, ordinances, and resolutions in place to implement the action?
- Are there any potential legal consequences?
- Is there any potential community liability?
- Is the action likely to be challenged by those who may be negatively affected?
- Does the mitigation strategy address continued compliance with the NFIP?

**Economic:**

- Are there currently sources of funds that can be used to implement the action?
- What benefits will the action provide?
- Does the cost seem reasonable for the size of the problem and likely benefits?
- What burden will be placed on the tax base or local economy to implement this action?
- Does the action contribute to other community economic goals such as capital improvements or economic development?
- What proposed actions should be considered but be “tabled” for implementation until outside sources of funding are available?

**Environmental:**

- How will this action affect the environment (land, water, endangered species)?
- Will this action comply with local, state, and federal environmental laws and regulations?
- Is the action consistent with community environmental goals?

## 5.4 Implementation Strategy and Analysis of Mitigation Projects

Implementation of the mitigation plan is critical to the overall success of the mitigation planning process. The first step is to decide, based upon many factors, which action will be undertaken first. In order to pursue the top priority first, an analysis and prioritization of the actions is important. Some actions may occur before the top priority due to financial, engineering, environmental, permitting, and site control issues. Public awareness and input of these mitigation actions can increase knowledge to capitalize on funding opportunities and monitoring the progress of an action.

At Meeting 4, the planning team prioritized mitigation actions based on a number of factors. The factors were the STAPLE+E criteria listed in Table 5-5. For each incorporated jurisdiction, a rating of high, medium, or low was assessed for each mitigation item and is listed next to each item in Table 5-6 through 5-18.

**Table 5-5: Summary of STAPLE+E Criteria**

<b>S – Social</b>	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community’s social and cultural values.
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<b>T – Technical</b>	Mitigation actions are technically most effective if they provide a long-term reduction of losses and have minimal secondary adverse impacts.
<b>A – Administrative</b>	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
<b>P – Political</b>	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
<b>L – Legal</b>	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
<b>E – Economic</b>	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
<b>E – Environmental</b>	Sustainable mitigation actions that do not have an adverse effect on the environment, comply with federal, state, and local environmental regulations, and are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

For each mitigation action related to infrastructure, new and existing infrastructure was considered. Additionally, the mitigation strategies address continued compliance with the NFIP. While an official cost-benefit review was not conducted for any of the mitigation actions, the estimated costs were discussed. The overall benefits were considered when prioritizing mitigation items from high to low. An official cost-benefit review is conducted prior to the implementation of any mitigation actions. Tables 5-6 through 5-18 present mitigation projects for each incorporated jurisdiction developed by the planning committee, as well as actions that are ongoing or already completed. The following jurisdictions wish to adopt the county's mitigation strategies: Allerton, Alvin, Belgium, Fairmount, Georgetown, Henning, Indianola, Oakwood, Potomac, Rankin, Rossville, Tilton and Westville. The objective of this plan is to generate proactive mitigation strategies with clear goals and objectives.



**Table 5-6:** List of Mitigation Strategies Developed at Meeting 4 for Vermilion County\*

<b>Mitigation Item</b>	<b>Goals and Objects Satisfied</b>	<b>Hazards Addressed</b>	<b>Priority</b>	<b>Comments</b>
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects on hazards	All Hazards	High	Vermilion County plans to obtain back-up generators for the Courthouse, Courthouse Annex, and other County owned buildings and grounds.
Fuel Supply Station	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects on hazards	All Hazards	High	Vermilion County wishes to build a multi-fuel station to supply gasoline, diesel to emergency vehicles.
Procure a Back-up Water Supply	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	High	Vermilion County would like to seek funding for a backup water supply.
Develop Alternate Traffic Routes	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Develop alternate traffic routes for critical roads	All Hazards	High	Vermilion County wishes to study and develop alternate traffic routes for Georgetown Road in the event of a HAZMAT incident. In addition, it would be useful to study and develop alternate traffic routes for other choke points in the county.
Public Education/Awareness	Goal: Develop long-term strategies to educate Vermilion County residents on the hazards affecting their community  Objective: Raise public awareness of hazard mitigation	All Hazards	Medium	Vermilion County plans to raise public awareness of hazard risk to the county through a Facebook page, a local television channel, and a local radio frequency. This item is ongoing.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Review Evacuation Plans	<p>Goal: Develop long-term strategies to educate residents on the hazards affecting their community</p> <p>Objective: Improve education and training of emergency personnel and public officials</p>	All Hazards	High	Vermilion County plans to review and enhance Evacuation law and plans. Shelter In Place will be enforced.
Enhance Alternate Emergency Operations Center	<p>Goal: Lessen the impacts of hazards to new and existing infrastructure</p> <p>Objective: Improve emergency sheltering in the county</p>	All Hazards	Medium	Vermilion County would like to enhance the alternate EOC facilities with communication, telephones, and other equipment.
Data Acquisition	<p>Goal: Create new or revise existing plans/maps for county</p> <p>Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation</p>	All Hazards	High	Vermilion County would like to implement a plan to gather damage information for the E911 center. This will enhance damage assessments in a timely manner.
First Responders Study	<p>Goal: Develop long-term strategies to educate residents on the hazards affecting their community</p> <p>Objective: Improve education and training of emergency personnel and public officials</p>	All Hazards	Low	Vermilion County has a high degree of volunteers and low budget agencies that are having difficulties maintaining their operations. The county would like to study the situation and future of quality and quantity of First Responders and their agencies.
Evaluate Current Radio Community Capability Between Emergency Department	<p>Goal: Lessen the impacts of hazards to new and existing infrastructure</p> <p>Objective: Improve emergency community in the county</p>	All Hazards	High	Vermilion County would like to hire an independent radio communications engineering firm to evaluate our existing county radio communications network and advise us how we can utilize our existing system better, enhance our existing system or start replacing our systems to better serve Public Safety Agencies in the county for the future.
Install Traffic Cameras	<p>Goal: Lessen the impacts of hazards to new and existing infrastructure</p> <p>Objective: Minimize the amount of infrastructure exposed to hazards</p>	All Hazards	Medium	Vermilion County would like to install traffic cameras in different areas of the county to get a better idea of road conditions and problems.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Burn Ordinances	Goal: Create new or revise existing plans/maps for county  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Extreme Heat/Drought	High	Vermilion County would like to review and enhance current burn ordinances. The EMA will work with the Health Department and Fire Departments for enforcement.
Evaluate Water Source Sustainability	Goal: Evaluate the county's water source for the future  Objective: Determine where the County's major water source is located	Extreme Heat/Drought	High	Vermilion County would like to evaluate water source sustainability for the future. This would require an evaluation of surface water level and quality trends.
Cooling/Warming Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Extreme Temperatures	High	Vermilion County would like to improve the County's emergency sheltering.
Institute a buy-out plan for repetitive loss properties	Goal: Remove at risk structures to reduce flood losses  Objective: Support compliance with the NFIP for each jurisdiction.	Flood	High	Vermilion County would like to assist the City of Danville on a buyout program at the Morin addition. The county would also like to investigate the possibility of purchasing lowlands adjacent to the state and county parks for a flood basin.
Participate in the NFIP	Goal: Create new or revise existing plans/maps for Vermilion County  Objective: Support compliance with the NFIP for each jurisdiction in Vermilion County	Flooding	Medium	Vermilion County currently participates in NFIP. Vermilion County EMA will continue to administration of this program and satisfy all requirements of the NFIP. The county wishes to hire part-time or full-time personnel to train county board members and other elected officials about NFIP and how it affects the county. The county will continue to train new personnel in administration NFIP.
Floodplain Ordinance	Goal: Create new or revise existing plans/maps for Vermilion County  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	High	Vermilion County will review the current floodplain ordinances within the county in order to satisfy all requirements of the NFIP.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Update Countywide GIS Capabilities	Goal: Upgrade GIS  Objective: Identify flood areas for planning.	Flooding	High	Vermilion County wishes to identify flood prone areas by upgrading GIS data layers. This will enhance floodplain management countywide.
Flood Monitoring	Goal: Install new stream gauges on the river in Georgetown, IL  Objective: Better monitoring of flooding in South Vermilion County	Flooding	High	Vermilion County has identified portion of the county that are prone to flooding. The county wishes to enhance flood monitoring along the river in Georgetown IL by installing new stream gauges.
Elevate Low-lying Roads	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Flooding	Medium	Vermilion County has identified low lying roads that need to be elevated in order to lessen the impacts of flooding. These roads will be added to the countywide GIS dataset.
Evaluate the Feasibility of Joining CRS	Goal: Reduce Flood losses, facilitate accurate insurance ratings, and promote awareness of flood insurance  Objective: Encourage community floodplain management activities that exceed the minimum NFIP requirements	Flooding	Medium	Vermilion County would like to explore the idea of joining CRS and encourage county wide participation. The County wishes to help residents understand flood risk, improve flood maps and regulations to ensure safer development, protect existing development from flood damage, and prepare for floods with plans and warning systems.
Create an MOU between agencies for abandoned vehicles	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Clear up congestion of vehicles that have been abandoned on roadways	Winter Storms	Low	Vermilion County would like to locate an area that vehicles can be towed/stored when abandoned on major highways during winter storms.

\*Allerton, Alvin, Belgium, Fairmount, Georgetown, Henning, Indianola, Oakwood, Potomac, Rankin, Rossville, Tilton and Westville adopts Vermilion County's Mitigation Strategies

**Table 5-7:** List of Mitigation Strategies Developed at Meeting 4 for Bismarck

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	Low	Bismarck wishes to seek funding to obtain back-up generators for the village office and garages. The USDA is a potential funding source.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Stormwater Management Ordinances	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	High	Bismarck hopes to start a full village drainage project. As of 2014, the village does not have a stormwater ordinance in place. The USDA is a potential funding source.
Waterway management	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Flooding	Medium	Bismarck has identified regions where large amounts of debris and growth accumulates along creeks during large amounts of precipitation. The village would like to start a projects that clears the creeks of debris and growth. The USDA is a potential funding source.
Emergency Plan / Protocol for HAZMAT	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	HAZMAT	High	Bismarck Fire Department will oversee this project.
Bury Power Lines	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornadoes	Low / Medium	Bismarck would like to bury power lines in the downtown section. This would be done as part of the village's development plan. The USDA is a potential funding source.
Install Battery-Backup Storm Sirens	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	Tornadoes	High	Bismarck would like to install battery-backup storm sirens to improve warning time. The village will oversee the project. The USDA is a potential funding source.
Buy supplies for the fire station	Goal: Lessen the impacts of people being forced out of homes  Objective: Improve fire stations as emergency shelters	Winter Storms	High	Bismarck would like to obtain cots and blankets for the fire station. This will improve the fire station as an emergency shelter. The Fire Department will oversee the project and will start as soon as possible.

**Table 5-8:** List of Mitigation Strategies Developed at Meeting 4 for Catlin

<b>Mitigation Item</b>	<b>Goals and Objects Satisfied</b>	<b>Hazards Addressed</b>	<b>Priority</b>	<b>Comments</b>
Provided and Publicize Location of Safe Rooms and / or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	All Hazards	High	The Village of Catlin would like to improve the emergency sheltering and publicize the locations to residents.
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	High	The Village of Catlin Fire Departments currently have back-up generators.
Mutual Aid Agreements	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	Medium	The Village of Catlin has already established mutual aid agreements with ILEAS.
Procure a Back-up Water Supply	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	Low	The Village of Catlin acknowledges the need for a back-up water supply in the event of a hazardous event. The Water Department has reserves in the water tower.
Cooling/Warming Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Extreme Temperatures	High	The Village of Catlin currently uses City Hall and the Fire Departments as shelters.
Property Acquisitions (buyouts)	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Flooding	Medium	Catlin would like to consider property acquisitions as a mitigation option and will seek funding. In the past the village has purchased property if the owner was willing to sell.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Floodplain Ordinances	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Medium	The village currently does not have flood ordinance in place and will work to develop one in the future
Stormwater Management Ordinance	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Low	Stormwater management currently falls under the Sewer Department jurisdiction.
Emergency Plan / Protocol for HAZMAT	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	HAZMAT	Medium	The Village of Catlin currently has a HAZMAT Emergency plan on file.
Bury Power Lines	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornado / Severe Storms	Low	Most, not all, of new construction in the Village of Catlin currently buries power lines. The Village will consider this mitigation strategy for the future.
Anchoring of Manufactured Homes & Exterior Attachments	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornado / Severe Storms	Low	The Village of Catlin currently has an ordinance on file for anchoring of Manufactured Homes and Exterior Attachments.

**Table 5-9:** List of Mitigation Strategies Developed at Meeting 4 for Danville

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	Medium	Danville wishes to seek funding for back-up generators to keep critical facilities operational during a hazard event.



Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Mutual Aid Agreements	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	High	The City of Danville will work to develop mutual aid agreements between neighboring communities and between fire and police departments.
Cooling/Warming Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Extreme Temperatures	Medium	The City of Danville currently uses City Hall and the Fire Departments as shelters but would like to increase sheltering in the city.
Property Acquisition (Buyouts)	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Flooding	High	Danville would like to investigate the opportunity for property acquisition. Moran Edition sits close to the River, almost every spring the residents have to be evacuated from their homes. Property buyouts would be an ideal solution for this location and others in the city.
Floodplain ordinances	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Medium	Updating Danville's current floodplain ordinance will help new development in the city mitigation against flood damages.
Identification of Floodplain Structures	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Examine flood loss areas and generate a comprehensive list of structures located in floodplains	Flooding	High	Danville will use the research conducted in this plan to create a comprehensive list of floodplain structures.
Emergency Plan / Protocol for HAZMAT	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	HAZMAT	Low	The City of Danville currently would like to develop an emergency HAZMAT release plan.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Provide and Publicize Location of Safe Rooms and/or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering	Tornadoes / Severe Storms	High	Danville plans to publicize the location of shelters to its residents.
Install Tornado Safe Room	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering	Tornadoes / Severe Storms	High	Danville wishes to seek funding for construction of a tornado safe room. Although several churches in the city have safe rooms, there is a need for additional safe rooms in the city to aid a larger portion of the residents.

**Table 5-10:** List of Mitigation Strategies Developed at Meeting 4 for Fithian

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Mutual Aid Agreements	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	High	Fithian would like to establish mutual aid agreements and plans to develop a triage area and transportation to/from medical facilities.
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	High	Fithian would like to obtain back-up generators to keep the water and sewer supply operational during a hazard event.
Family Disaster Plans & Kits	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness on hazard mitigation	All Hazards	High	Fithian has identified the need to raise public awareness in the event of a disaster and to encourage residents to expand disaster planning to include animal rescue.
Establish Local Planning Committee	Goal: Create new or revise existing plans/maps for the county  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	All Hazards	High	Fithian would like to establish a local emergency planning committee. This group will be designated to organize emergency procedures.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Special Needs Population List	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	High	Fithian plans to publicly appeal to its citizens and ask the special needs population or those caring for them to provide data for this list.
Procure a Back-up Shelter Supplies	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	High	Fithian would like to obtain bottled water, food rations, and first aid supplies for all residents.
Harden Existing Infrastructure	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	All Hazards	High	Fithian has identified the need to harden the existing infrastructure for the following facilities/locations: wells; sewer plant, and lift stations
Burn Ordinances	Goal: Create new or revise existing plans/maps for county  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Extreme Heat/Drought	High	Fithian would like to explore the option of burn ordinances in the village.
Cooling/Warming Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Extreme Temperatures	Medium	Fithian would like to improve the village's emergency sheltering.
Emergency Plan / Protocol for HAZMAT	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	HAZMAT	High	Fithian would like to create an emergency plan for Hazmat incidents.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Provide and Publicize Location of Safe Rooms and / or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Tornado	High	Fithian has identified the need for more safe shelters in the village.
Tree Management/Trimming Plan	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	Tornado / Severe Storms	High	Fithian would like to have limbs cleared from power lines and for low-hanging limbs to be cleared.

**Table 5-11:** List of Mitigation Strategies Developed at Meeting 4 for Hoopeston

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	Medium	Hoopeston wishes to seek funding for back-up generators to keep critical facilities operational during a hazard event.
Mutual Aid Agreements	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	High	The City of Hoopeston will work to develop mutual aid agreements between neighboring communities and between fire and police departments.
NOAA Weather Radios	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county	All Hazards	Medium	The City of Hoopeston would like to obtain funding to provide residents with NOAA weather radios.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Public Education/Awareness	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness of hazard mitigation	All Hazards	High	Although this mitigation strategy is ongoing in Hoopeston, the city would like to form a committee to oversee this mitigation strategy. The city will seek funding and a potential completion date would be August 2015.
Special Needs Population List	Goal: Create new or revise existing plans/maps  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	Medium	Ambulance and emergency responders in Hoopeston will oversee this mitigation strategy. The city will look into its current budget to see if this is a feasible project – if not funding will be pursued.
Property Acquisition & Relocation	Goal: Remove at risk structures to reduce flood losses  Objective: Support compliance with the NFIP for each jurisdiction.	Flood	Medium	The City of Hoopeston would like to investigate the option of property acquisition and relocation of property that in the floodplain.
Develop education materials on the benefits of the NFIP	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness of hazard mitigation	Flooding	High	The City of Hoopeston wishes to educate its residents on the benefits of the NFIP. Local fire department and the county EMA office will oversee this strategy. The goal is seek funding for this project.
Provide and Publicize Location of Safe Rooms and / or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Tornado	High	Hoopeston has identified the need to promote the location of safe rooms and shelters in the city.
Tree Management/Trimming Plan	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	Tornado / Severe Storms	Medium	Hoopeston would like to have limbs cleared from power lines and for low-hanging limbs to be cleared.

**Table 5-12:** List of Mitigation Strategies Developed at Meeting 4 for Muncie

<b>Mitigation Item</b>	<b>Goals and Objects Satisfied</b>	<b>Hazards Addressed</b>	<b>Priority</b>	<b>Comments</b>
Participate in the NFIP	Goal: Create new or revise existing plans/maps  Objective: Support compliance with the NFIP	Flooding	High	The Village of Muncie currently participates in NFIP. Muncie will continue to revise plans to maintain active status in the NFIP.
Property Acquisition & Relocation	Goal: Remove at risk structures to reduce flood losses  Objective: Support compliance with the NFIP for each jurisdiction.	Flood	Medium	The Village of Muncie would like to move home and people in the floodplain. The Village has also identified a park and baseball diamond that has reoccurring flooding.
Floodplain Ordinance	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Medium	The Village of Muncie will review the current floodplain ordinances in order to satisfy all requirements of the NFIP.
Stormwater Ordinance	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Medium	The Village of Muncie has identified regions in the village where storm tiles and field tiles need to be replaced in order to help drainage runoff.
Dam and/or Levee Maintenance Plan	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	High	The Village of Muncie would like to revamp the levee/waterway located in south Muncie to divert water away from the middle of town.
Elevate Low-Lying Roads	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Flooding	High	The Village of Muncie would like to elevate roads to prevent the road from washing out or holding water.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Installation of Pumping Stations	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Flooding	Medium	The Village of Muncie would like to install pumping stations near the railroad tracks to prevent water from entering the town towards the south.
Culvert Replacement in Floodplains	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Flooding	Medium	The Village of Muncie would like to replace culverts to increase the capacity of water movement under roads and alleys.
Harden Existing Infrastructure	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornadoes/ Severe Storms	High	The Village of Muncie has identified the need to harden the existing infrastructure at the town hall for those with no basements in the event of a tornado.
Bury Power Lines	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornadoes/ Severe Storms	Low	The Village of Muncie wishes to remove overhead power lines that could become deadly if damaged by Tornadoes or Severe Storms.
Provide and Publicize Location of Safe Rooms and / or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering	Tornadoes/ Severe Storms	Medium	The town hall was built as a safe shelter and doubles as storage. The Village of Muncie will inform the community of the town hall safe room and other locations within the county.
Back-up Power Source for the Town Hall	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	Medium	The Village of Muncie wishes to obtain a back-up power source for the Town Hall to help create a heating and cooling center in case of power outage.
Ordinance for Higher Construction Standards / Techniques	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Tornadoes / Severe Storms	Medium	The Village of Muncie will develop an ordinance for high construction standards to help make the town safe from faulty construction of homes and buildings.



Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Tree Management	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Replace old trees and place wind breaks	Tornado / Severe Storms	High	The Village of Muncie would like to plant trees along the south side of town to develop a windbreak.
Emergency Alert System – Sirens	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	Tornado	High	The Village of Muncie would like to obtain funding to install a tornado siren.
Install Snow Fences	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Winter Storms	Low	The Village of Muncie would like to obtain funding to install snow fences to slow snow from blowing from south and west of town.
Heating and Cooling Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering	Winter Storms / Extreme Heat and Drought	Medium	The Village of Muncie wishes to create a heating/cooling shelter within the community for people without generators or for those who are traveling through town.
Snow Removal Equipment	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Winter Storms	Medium	The Village of Muncie would like to obtain equipment for snow plowing (truck or loader) to help clean streets and improve travel conditions.
Emergency Plan / Protocol for HAZMAT	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	HAZMAT	Medium	The Village of Muncie aims to create a committee that will oversee the handling of hazardous waste cleanup and planning.
Burn Ordinance	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Extreme Heat and Drought	Medium	The Village of Muncie will work to develop a burn ordinance to help prevent fires during dry conditions or fires that are illegally started.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Mutual Aid Agreements	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	High	The Village of Muncie will work to develop mutual aid agreements between neighboring communities and between fire and police departments.
NOAA Weather Radios	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county	All Hazards	Medium	The Village of Muncie would like to obtain funding to provide residents with NOAA weather radios.
Upgrade Sewer System	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	All Hazards	Medium	The Village of Muncie would like to install town sewer lines that connect to the Fithian Sewer Plant.
Back-up Water Source	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	All Hazards	Medium	The Village of Muncie would like to add city water and sewer to the town. In addition, they would like to add a water tower to increase the water supply to the town.

**Table 5-13:** List of Mitigation Strategies Developed at Meeting 4 for Oakwood\*

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Develop Alternate Traffic Routes	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Develop alternate traffic routes for critical roads	Winter Storms	High	Oakwood has become a drop-off site for stranded motorists and large trucks during winter storms – developing alternate traffic routes and increasing police control would help with this issue.
Buy emergency supplies for the local Christian Church	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering	All Hazards	High	The local Christian Church in Oakwood is used as a temporary site for stranded travelers during winter storms. Oakwood wishes to obtain necessary emergency supplies.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Winter Storm Plan	Goal: Create new or revise existing plans/maps  Objective: Minimize the amount of infrastructure exposed to hazards	Winter Storms	High	Oakwood has identified the need to increase the amount of man power used during winter storms. Recent winter storms have required extra time clearing and salting roads.

\*Oakwood wishes to adopt Vermilion County's Mitigation Strategies

**Table 5-14:** List of Mitigation Strategies Developed at Meeting 4 for Ridge Farm

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Family Disaster Plans & Kits	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness on hazard mitigation	All Hazards	Medium	Ridge Farm has identified the need to raise public awareness in the event of a disaster, to distribute emergency kits, and to encourage residents to have Family Disaster Plans.
Establish Local Planning Committee	Goal: Create new or revise existing plans/maps for the county  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	All Hazards	Medium	Ridge Farm would like to establish a local emergency planning committee. This group will be designated to organize emergency procedure on a regular basis.
Special Needs Population List	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	High	Ridge Farm plans to publicly appeal to its citizens and ask the special needs population or those caring for them to provide data for this list.
Heating and Cooling Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Extreme Heat / Cold	Medium	Ridge Farm plans to make the public aware of the existing heating and cooling shelters in the village.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Burn Ordinance	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Extreme Heat / Drought	Medium	Ridge Farm wishes to develop and implement an ordinance to limit/prohibit burning of any kind during heat or drought conditions.
Participate in the NFIP	Goal: Create new or revise existing plans/maps  Objective: Support compliance with the NFIP	Flooding	Low	Ridge Farm currently participates in NFIP. Ridge Farm will continue to monitor existing plans/maps and satisfy all requirements of the NFIP in case flooding becomes a problem in the future.
Stormwater Management Ordinances	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Low	Ridge Farm does not currently have stormwater ordinances in place. The village will work to develop ordinances should stormwater become an issue in the future.
Emergency Plan / Protocol for HAZMAT	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	HAZMAT	Medium	Ridge Farm does not have an Emergency Plan in the event of a HAZMAT incident. The village plans to develop a protocol for evacuation in the event of a chemical or other hazardous material spill.
Provide and Publicize Location of Safe Rooms and / or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Tornado / Severe Storms	Medium	Ridge Farm plans to make the public aware of the existing shelters and safe rooms.
Anchoring of Manufactured Homes & Exterior Attachments	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornado / Severe Storms	Medium	Ridge Farm will work to develop and implement an ordinance requiring all manufactured homes and trailers to have tie downs.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Install Snow Fences	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Winter Storms	Medium	Ridge Farm wishes to install snow fences to help the drifting and blowing of snow to minimize the amount of snowdrift on roadways and railways.

**Table 5-15:** List of Mitigation Strategies Developed at Meeting 4 for Sidell

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Public Education/Awareness	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness of hazard mitigation	All Hazards	High	Sidell plans to raise public awareness of hazard risk.
Participate in the NFIP	Goal: Create new or revise existing plans/maps  Objective: Support compliance with the NFIP	Flooding	Medium	Sidell does not currently participate in the NFIP. The village plans to investigate its options.
Stormwater Management Ordinances	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Medium	Sidell does not currently have stormwater ordinances in place. The village will work to develop ordinances should stormwater become an issue in the future.
Floodplain Ordinances	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Flooding	Low	Sidell does not currently have floodplain ordinance in place. The village will work to develop ordinances should flooding become an issue in the future.
Anchoring of Manufactured Homes & Exterior Attachments	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornado / Severe Storms	High	Sidell will work to develop and implement an ordinance requiring all manufactured homes and trailers to have tie downs.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Bury Power Lines	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Minimize the amount of infrastructure exposed to hazards	Tornado / Severe Storms	Medium	Sidell does not currently require new construction to bury power lines. The Village will consider this mitigation strategy for the future.
Provide and Publicize Location of Safe Rooms and / or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	All Hazards	High	Sidell plans to make the public aware of the existing shelters and safe rooms.
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	High	Sidell wishes to seek funding for back-up generators to keep critical facilities operational during a hazard event.
Heating and Cooling Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Extreme Heat / Cold	High	Sidell wishes to seek funding for additional heating and cooling shelters. The village plans to make the public aware of the existing heating and cooling shelters.
Emergency Plan / Protocol for HAZMAT	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	HAZMAT	High	Sidell has an Emergency Plan in place in the event that a chemical discharge occurs. The village plans to update and maintain this plan.
Burn Ordinance	Goal: Create new or revise existing plans/maps  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	Extreme Heat / Drought	High	Sidell already implements an ordinance to limit/prohibit burning of any kind during heat or drought conditions.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Water Rationing	<p>Goal: Create new or revise existing plans/maps</p> <p>Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation</p>	Extreme Heat / Drought	High	Sidell already implement an ordinance to limit/prohibit excessive use of water during heat or drought conditions.
Mutual Aid Agreements	<p>Goal: Lessen the impacts of hazards to new and existing infrastructure</p> <p>Objective: Evaluate and strengthen the communication and transportation abilities of emergency services</p>	All Hazards	High	Sidell identifies the need to establish mutual aid agreements with neighboring communities.
Family Disaster Plans and Kits	<p>Goal: Develop long-term strategies to educate residents on the hazards affecting their community</p> <p>Objective: Raise public awareness on hazard mitigation</p>	All Hazards	High	Sidell will work to educate village residents on the need for family disaster plans.
Back-up Water Supply	<p>Goal: Lessen the impacts of hazards to new and existing infrastructure</p> <p>Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards</p>	All Hazards	High	Sidell wishes to seek funding for back-up water supply in the event of a hazard.
Establish Local Planning Committee	<p>Goal: Create new or revise existing plans/maps for the county</p> <p>Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation</p>	All Hazards	Medium	Sidell would like to establish a local emergency planning committee. This group will be designated to organize emergency procedure on a regular basis.



**Table 5-16:** List of Mitigation Strategies Developed at Meeting 4 for American Red Cross

<b>Mitigation Item</b>	<b>Goals and Objects Satisfied</b>	<b>Hazards Addressed</b>	<b>Priority</b>	<b>Comments</b>
Provide and Publicize Location of Safe Rooms and / or Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	All Hazards	High	The American Red Cross will assist the EMA to help educate and publicize shelter safety.
Cooling/Warming Shelters	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Improve emergency sheltering in the county	Extreme Temperatures	High	The American Red Cross will continue to identify and open shelters as requested.
Public Education / Awareness	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness of hazard mitigation	All Hazards	High	The American Red Cross will continue to educate adults and children on safety measures
Mutual Aid Agreements	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services	All Hazards	High	The American Red Cross will continue to work with other agencies within Vermilion County and develop agreements.
Back-up Generators	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards	All Hazards	High	The American Red Cross already has a generator at the EMA facility.
Family Disaster Plans and Kits	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness on hazard mitigation	All Hazards	High	The American Red Cross will continue to educate the public on the need for family disaster plans.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Establish Local Planning Committee	Goal: Create new or revise existing plans/maps for the county  Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation	All Hazards	High	The American Red Cross will serve on the Vermilion County LEPC.

\*Representatives from American Red Cross suggest several mitigation items specific to the county.

**Table 5-17:** List of Mitigation Strategies Developed at Meeting 4 for Vermilion County Health Department\*

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Public Education / Awareness	Goal: Develop long-term strategies to educate Vermilion County residents on the hazards affecting their community  Objective: Raise public awareness of hazard mitigation	All Hazards	High	The Vermilion County Health Department has an ongoing public education and awareness program that educates the public and disseminates information regarding all hazards. They provide information to local and public radio and television regarding emergency warning and public service announcements. The VCEMA, VCHD, Red Cross, and Media are involved. Funding sources include federal, state, local, and grants.
NOAA Weather Radios	Goal: Lessen the impacts of hazards to new and existing infrastructure  Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county	All Hazards	High	The Vermilion County Health Department encourages the use of NOAA all-hazards radios in residences and businesses throughout unincorporated areas. Local funding sources are utilized.
Family Disaster Plans and Kits	Goal: Develop long-term strategies to educate residents on the hazards affecting their community  Objective: Raise public awareness on hazard mitigation	All Hazards	High	The Vermilion County Health Department currently educates the public on the importance of family disaster plans and kits. Local funding sources are utilized.

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Special Needs Population List	<p>Goal: Lessen the impacts of hazards to new and existing infrastructure</p> <p>Objective: Evaluate and strengthen the communication and transportation abilities of emergency services</p>	All Hazards	Medium	The Vermilion County Health Department would like to create a special needs population list by the end of 2016. The VCEMA, VCHD, Red Cross, CRIS, and Crosspoint will participate. Potential funding sources include federal, state, and local.

\*Representatives from a few of the Vermilion County Health Department suggest several mitigation items specific to the county.

**Table 5-18:** List of Mitigation Strategies Developed at Meeting 4 for Vermilion County Schools\*

Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Priority	Comments
Establish Emergency Planning Committee	<p>Goal: Create new or revise existing plans/maps for the county</p> <p>Objective: Review and update existing, or create new community plans and ordinances to support hazard mitigation</p>	All Hazards	High	All school buildings have a Crisis Team to prepare for disasters. In addition, local police have been granted access to all school buildings and have school maps.
Public Education / Awareness	<p>Goal: Develop long-term strategies to educate Vermilion County residents on the hazards affecting their community</p> <p>Objective: Raise public awareness of hazard mitigation</p>	Fire / Tornado	High	Fire, tornado, and bus evacuation drills are conducted a minimum of two times each school year in each building.
Emergency Alert System – Sirens	<p>Goal: Lessen the impacts of hazards to new and existing infrastructure</p> <p>Objective: Evaluate and strengthen the communication and transportation abilities of emergency services</p>	Fire / Tornado	High	Fire and tornado alert systems are in each school building. In addition, per the Strategic Plan, each building's intercom systems have been updated to assist with communication within buildings

\*Representatives from a few of the school districts of Vermilion County suggest several mitigation items specific to schools in the county.

The Vermilion County Emergency Management Agency will be the local champion for the mitigation actions. The County Commissioners and the city and town councils will be an integral part of the implementation process. Federal and state assistance will be necessary for a number of the identified actions.

### **5.5 Multi-Jurisdictional Mitigation Strategy**

As a part of the multi-hazard mitigation planning requirements, at least two identifiable mitigation action items have been addressed for each hazard listed in the risk assessment and for each jurisdiction covered under this plan.

Each of the twenty-one participating jurisdictions within and including Vermilion County was invited to participate in brainstorming sessions in which goals, objectives, and strategies were discussed and prioritized. Each participant in these sessions was armed with possible mitigation goals and strategies provided by FEMA, as well as information about mitigation projects discussed in neighboring communities and counties. All potential strategies and goals that arose through this process are included in this plan. The county planning team used FEMA's evaluation criteria to gauge the priority of all items. A final draft of the disaster mitigation plan was presented to all members to allow for final edits and approval of the priorities.

## **Section 6 Plan Maintenance**

### **6.1 Monitoring, Evaluating, and Updating the Plan**

Throughout the five-year planning cycle, the Vermilion County Emergency Management Agency (EMA) will reconvene the mitigation planning team to monitor, evaluate, and update the plan on an annual basis. Additionally, a meeting will be held in 2018 to address the five-year update of this plan. Members of the planning committee are readily available to engage in email correspondence between annual meetings. If the need for a special meeting, due to new developments or a declared disaster occurs in the county, the team will meet to update mitigation strategies. Depending on grant opportunities and fiscal resources, mitigation projects may be implemented independently by individual communities or through local partnerships.

The committee will review the county goals and objectives to determine their relevance to changing situations in the county. In addition, state and federal policies will be reviewed to ensure they are addressing current and expected conditions. The committee will also review the risk assessment portion of the plan to determine if this information should be updated or modified. The parties responsible for the various implementation actions will report on the status of their projects, and will include which implementation processes worked well, any difficulties encountered, how coordination efforts are proceeding, and which strategies should be revised.

Updates or modifications to the MHMP during the five-year planning process will require a public notice and a meeting prior to submitting revisions to the individual jurisdictions for approval. The plan will be updated via written changes, submissions as the committee deems appropriate and necessary, and as approved by the county commissioners.

The GIS data used to prepare the plan was obtained from existing county GIS data as well as data collected as part of the planning process. This updated Hazus-MH GIS data has been returned to the county for use and maintenance in the county's system. As newer data becomes available, these updated data will be used for future risk assessments and vulnerability analyses.

### **6.2 Implementation through Existing Programs**

The results of this plan will be incorporated into ongoing planning efforts since many of the mitigation projects identified as part of this planning process are ongoing. Vermilion County and its incorporated jurisdictions will update the zoning plans and ordinances listed in Table 5-3 as necessary and as part of regularly scheduled updates. Each community will be responsible for updating its own plans and ordinances.

### **6.3 Continued Public Involvement**

Continued public involvement is critical to the successful implementation of the MHMP. Comments from the public on the MHMP will be received by the EMA Coordinator and forwarded to the mitigation planning team for discussion. Education efforts for hazard mitigation will be ongoing through the EMA. The public will be notified of periodic planning meetings through notices in the local newspaper. Once adopted, a copy of the MHMP will be maintained in each jurisdiction and in the county EMA Office.

## Acronyms

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

**A** AEGL – Acute Exposure Guideline Levels  
ALOHA – Areal Locations of Hazardous Atmospheres

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**C** CERI – Center for Earthquake Research and Information  
CRS – Community Rating System

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**D** DEM – Digital Elevation Model  
DFIRM – Digital Flood Insurance Rate Map  
DMA – Disaster Mitigation Act of 2000

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**E** EMA – Emergency Management Agency  
EPA – Environmental Protection Agency  
ERPG – Emergency Response Planning Guidelines  
ESDA – Emergency Services Disaster Agency

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**F** FEMA – Federal Emergency Management Agency  
FIRM – Flood Insurance Rate Map

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**G** GIS – Geographic Information System

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**H** Hazus-MH – Hazards USA Multi-Hazard  
HMGP – Hazard Mitigation Grant Program  
HUC – Hydrologic Unit Code

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**I** IA – Individual Assistance  
IDOT - Illinois Department of Transportation  
IEMA – Illinois Emergency Management Agency  
IUPUI – Indiana University – Purdue University, Indianapolis

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**M** MHMP – Multi-Hazard Mitigation Plan  
MOU – Memorandum of Understanding

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**N**     NCDC – National Climatic Data Center  
       NEHRP – National Earthquake Hazards Reduction Program  
       NFIP – National Flood Insurance Program  
       NOAA – National Oceanic and Atmospheric Administration

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**P**     PA – Public Assistance  
       PPM – Parts Per Million

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**R**     RPI – Risk Priority Index

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**S**     SIU – Southern Illinois University Carbondale  
       SPC – Storm Prediction Center

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**U**     USGS – United States Geological Survey



## **Appendices**

## **Appendix A. MHMP Meeting Minutes**

**IEMA Multi-Hazard Mitigation Plan**

**Assembly of the Vermilion County Planning Team Meeting 1**  
**Chairman: Jim McMahon**  
**Plan Directors: SIUC Geology Department and IUPUI - Polis**

**Meeting Date: 07/21/2012**

**Meeting Time: 7:00PM**

**Place: Vermilion County Annex, 6 North Vermilion Street, Danville, IL**

**Planning Team/Attendance: 15**

**Introduction to the Multi-Hazard Mitigation Planning Process**

The meeting is called to order

Narrative: A power-point presentation was given by Jonathon Remo. He explained that this project is in response to the Disaster Mitigation Act of 2000. The project is funded by a grant awarded by FEMA. A twenty-five percent match will be required from the county to fund this project. The county match will be met by sweat equity and data acquired from the County Assessor's Office. The sweat equity will be an accumulation of time spent at the meetings, on research assignments, surveys, along with the time spent reviewing and producing the planning document.

Jonathan Remo introduced the Pre-Disaster Mitigation Website to the planning team. A username and password was given to the planning team, which will grant them access to the web site. The web site is used to schedule meetings, post contact information and download material pertaining to the planning process.

Jonathan Remo divided the planning project into five to six meetings. At the 1<sup>st</sup> meeting, the planning team will review critical facility maps. The planning team will be asked to research and verify the location of all critical facilities within the county. Jonathan stated that public participation is very important throughout the planning process. He explained that all of the meetings are open to the public but there will be a particular effort made to invite the public to the 3<sup>rd</sup> meeting. At that meeting, the SIUC Geology Department will present historic accounts of natural disasters that have affected this area. At the 2<sup>nd</sup> meeting the discussion will focus on natural disasters that are relevant to this area. These hazards will be given a probability rating and ranked by their occurrence and potential level of risk. The SIUC Geology Department will research these hazards and present them to the planning team. The 3<sup>rd</sup> meeting is publicized in order to encourage public participation. The SIUC Geology Department will produce a risk assessment in draft form (each planning team member will get a copy) as well as present strategies and projects that FEMA and other counties have undertaken for the planning team to review. The 4<sup>th</sup> meeting consists of a brain

storming session focused on disasters that were analyzed in the risk assessment report. The Planning Team will list strategies and projects that could be implemented to mitigate the potential hazards that threaten the county. FEMA requires that for every identified hazard, a strategy to mitigate the loss and damage must be in place. The strategies may range from educational awareness to hardening a building or building a levee. After the 4<sup>th</sup> meeting the plan will be in its final draft form. At the 5<sup>th</sup> meeting the planning team will need to review the plan prior to sending it to IEMA. IEMA will review the plan and will make recommendation to it as they see fit, then it is submitted to FEMA for review and approval. Once the plan has been submitted to FEMA, local governments are eligible to apply for grants to mitigate these established hazards. After FEMA approves the plan, it is sent back to the Planning Team. At the 6<sup>th</sup> meeting the Planning Team will present the Pre-Disaster Mitigation Plan to the County Board for adoption. Incorporated communities must either adopt the county plan or prepare its own plan, in order to access mitigation assistance from FEMA. The communities are encouraged to participate and contribute to development of the plan. Once the County Board has adopted the plan, each incorporated community will have the opportunity to adopt the plan as well.

Jonathan Remo then assigned research homework arranged by categories to individual planning team members to locate missing or incorrect critical facilities.

Lastly, Jonathan Remo fielded any questions from the planning team about the process of mitigation planning.

Meeting was adjourned.

## Multi-Hazard Mitigation Planning Meeting Attendance

Meeting 1 - Vermilion County 7/11/2012

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Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
	Terrie Shaver		Administrative Vermilion County	217-554-6002 tshaver@co.vemil.il.us
	John Goodwin	JK	Ridge Farm Village Trustee	217-247-2850 jgoodwin@ridgefarmtrust.org
	Keely Kellerman		Rossville Mayor	217-748-6900 mkellerman@rossville.org
Edgar Co.	Dane Fidler		ESDA Coordinator	
ESDA				
Thosville	Tom Fultz	TF	Asst Fire Chief	7701 Rector Ave Thosville, IL 61785 tomfultz@thosville.org
Village of Oglewood	Bob Jennings	RJ	Village President	217-354-4255 bjennings@oglewood.org
Hammond	James McManus	JM	Board Chairman	James@placematters.org 217-558-6000
Vermilion Co Health Dept	Shirley Hicks	SH	Public Health Admin	shicks@vchd.org 217-431-2462

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## Multi-Hazard Mitigation Planning Meeting Attendance

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Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
SIDELL IL	Barb Funkard	BF	ESDA Tech	217-493-6010 barb@sidell.org
VC EMA	Barb Funkard	BF	ESDA Tech	217-493-6010 barb@sidell.org
Ridge Farm	Sharon Simmons	SS	Village President	217-247-2850 simmons@ridgefarmtrust.org
VC EMA	Ted Fisher	TF	ESDA Director	
Vermilion Co Sheriff Dept	Dennis Wertz	DW	Captain Patrol Division	217-474-4003 dwertz@vermilion.org
VC EMA	Michele Rice	MR	ESDA Manager	217-443-6010 mrice@vermilion.org

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### Multi-Hazard Mitigation Planning Meeting Attendance

[illegible]

**IEMA Multi-Hazard Mitigation Plan**

Assembly of the Vermilion County Planning Team Meeting 2:  
 Chairman: Jim McMahon  
 Plan Directors: SIUC Geology Department and IUPUI - Polis

Meeting Date: October 23, 2012

Meeting Time: 1:00 PM

Place: Vermilion County Annex, 6 North Vermilion Street, Danville, IL

Planning Team/Attendance: 15

**Historical Hazards, their Probability, and Hazard Ranking**

The meeting was called to order.

Elizabeth Ellison began the meeting by reintroducing the objectives of the multi-hazard mitigation plan (MHMP). Since the Disaster Mitigation Act passed in 2000, FEMA requires that a county maintain an MHMP to maintain eligibility for disaster assistance. Elizabeth stated that the objective of this meeting was to list and to prioritize disasters that present significant risk to Vermilion County.

Elizabeth provided the planning team with a hazard-identification handout to direct the focus of the hazard prioritization process. Planning team members ranked the risk for each hazard in Monroe County using FEMA's risk priority index (RPI), which is the product of hazard probability and magnitude.

Vermilion County produced the following rankings:

- #1: Flooding
- #2: Tornado
- #3: Thunderstorms
- #4: Ice Storms
- #5: Winter Storms
- #6: Wild Fires
- #7: Haz-Mat Release

Elizabeth asked the planning team to verify the locations, dates, and magnitudes of historical hazards mapped by Southern Illinois University at Carbondale (SIUC). The planning team noticed no errors on the map. Elizabeth also recorded scenarios for each hazard that the Vermilion County planning team wishes to see modeled for the MHMP.

The planning team agreed to verify locations of critical facilities by the next meeting.

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**Multi-Hazard Mitigation Planning Meeting Attendance**

Vermilion  
Meeting 2

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)	
Sidell, IL	Bradley J. Prunkard		Board Member, Village of Sidell		(217) 474-1711
Vermilion County EMA	Barb Prunkard	BP	EMA Tech	ema3@dvccema.org	(217) 443-6010
Ridge Farm	Sharon Simmons		Village President	villageofridgefarm@gmail.com	(217) 247-2239 (217) 918-1200
Vermilion County EMA	Ted Fisher	TF	EMA Director		
Vermilion County Sheriff's Dept.	Dennis Wood		Captain	dwood@vermilionsheriff.org	(217) 474-4003
Vermilion County EMA	Michele Rice	MR	Office Manager	ema4@dvccema.org	(217) 443-6010
	Terrie Sherer	TS	Administrative Assistant, Vermilion County	tmurtr@vercounty.org	(217) 554-6002
	John Goodwin	JG	Trustee, Village of Ridge Farm	ednoa53@comcast.net	(217) 554-2777 6000 2880
	Terry Prillaman		Rossville Mayor	mayor@villageofrossville.org	(217) 748-6900

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## Vermilion Meeting 2

[illegible]

### Multi-Hazard Mitigation Planning Meeting Attendance

# Vermilion Meeting 2

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Edgar County ESDA	Duane Fidler		ESDA Coordinator	
Danville Fire Dept.	Tom Pruitt	RP	Assistant Fire Chief	t.pruitt@cityofdanville.org (217) 748-6900
Village of Oakwood	Bob Jennings	RJ	Village President	oakwood-village@comcast.net (217) 354-4255
Vermilion County	James McMahon	JM	County Board Chairman	jcmcmahon@vercount.org (217) 554-6000
Vermilion County Health Department	Shirley Hicks		Public Health Administrator	shicks@ychd.org (217) 431-2662
	Eric Haase		Chief of Police	Rhp468@hotmail.com (217) 247-5008 (217) 918-1173
Carlin Mayor	Jim Robinson		Mayor	jrobinson@mh.com (217) 368-032
Georgetown	Dennis Lucas		Mayor	
Fideland	Thomas Stead		Mayor	Thomas Stead @ Yahoo.com (217) 304-6187
Danville VA	Till Anderson		Emergency Mgr	jill.anderson@va.gov (217) 554-4592

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**IEMA Multi-Hazard Mitigation Plan**

Assembly of the Vermilion County Planning Team Meeting 3:  
 Chairman: Gary Weinard  
 Plan Directors: SIUC Geology Department and IUPUI - Polis

Meeting Date: 04/30/2013

Meeting Time: 7:00PM

Place: Vermilion County Annex, 6 North Vermilion Street, Danville, IL

Planning Team/Attendance: 12

**Public Meeting and the County Risk Assessment**

Elizabeth Ellison called the meeting to order.

Elizabeth Ellison opened the meeting with an overview of the planning process and the roles of SIUC and the Polis Center. She went on to explain the topics and objectives of the current meeting. Elizabeth first presented the planning team with the list of hazards that the team ranked using the RPI during the previous meeting. She also presented a power point presentation on the history of Vermilion County's past disaster events. This included each hazard that Vermilion County identified as a significant risk, the history of each disaster, and mitigation strategies for each disaster. She defined mitigation as the act of avoidance and preparedness.

A draft chapter 4 of the Vermilion County Multi-Hazard Mitigation Plan was given to each of the planning team members for review. Elizabeth explained the contents of the plan via power point presentation. A mitigation strategies survey and a mitigation strategies summary table were given to each planning team member for the purpose of stimulating thought on mitigation strategies for each hazard. Elizabeth asked each of the planning team members to come up with at least two mitigation strategies for each hazard.

Elizabeth Ellison then asked the audience for questions or comment. After some discussion about the plan and how it would affect the community and its residents, she thanked those who came and a closed the presentation.

Meeting was adjourned.

*Multi-Hazard Mitigation Planning Meeting Attendance*

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Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)	
Sidell	Bradley J. Prunkard		Board Member, Village of Sidell		217-474-1711
Vermilion County	Barb Prunkard	BP	EMA Tech	ema3@dcvema.org	217-443-6010
Ridge Farm	Sharon Simmons		Village President	villageofridgefarm@gmail.com	217-247-2239; 217-918-1200
Vermilion County	Ted Fisher		EMA Director		
Vermilion County	Dennis Wood		Captain, Sheriff's Department	dwood@vermillionsheriff.org	217-474-4003
Vermilion County	Michele Rice	MR	Office Manager, EMA	ema4@dcvema.org	217-443-6010
	Terrie Sherer	TS	Administrative Assistant, Vermilion County	tsmtr@vercounty.org	217-554-6002
	John Goodwin		Trustee, Village of Ridge Farm	edhoas53@comcast.net	217-554-6000
	Terry Prillaman		Rossville Mayor	mayor@villageofrossville.org	217-748-6900
Edgar County	Duane Fidler		ESDA Coordinator		

## Multi-Hazard Mitigation Planning Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Vermilion County	Melissa Rome	MR	Emergency Planning & Response Coordinator	mrome@verchd.org 217-431-2662
ARC	Jamie Davis			217-431-5600
	GARY LEWAND			
* VE EMA	TED FISHER	TF		
Hopston EM	Scott Shaw	SS		
Hopkinton	Bob Hancock	RB		
Hopkinton	Bill Casper	BC		
Hopkinton	Gary Lewis	GL		217-344-6998

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## Multi-Hazard Mitigation Planning Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Danville	Tom Pruitt		Assistant Fire Chief	lpruitt@cityofdanville.org 217-748-6900
Oakwood	Bob Jennings		Village President	oakwood-village@comcast.net 217-354-4255
Vermilion County	James McMahon		County Board Chairman	jmcMahon@vercount.org 217-554-6000
Vermilion County	Shirley Hicks	SH	Public Health Administrator	shicks@vchd.org 217-431-2662
	Eric Haase		Chief of Police	rfpde88@hotmail.com 217-247-5008; 217-918-1173
Catlin	Jim Robinson		Mayor	jrobinson@fmh.com 217-369-0322
Georgetown	Dennis Lucas		Mayor	217-662-2525
Indianola	Thomas Gooch	TG	Mayor	ThomasGooch111@yahoo.com 217-304-6489
Danville	Jill Anderson		Emergency Mayor	jill.anderson4@va.gov 217-554-4592
Oakwood	Terry Hume		EMS Chief	217-354-2479

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**EMA Multi-Hazard Mitigation Plan**

Assembly of the Vermilion County Planning Team Meeting 4:  
Chairman: Gary Weinard  
Plan Directors: SIUC Geology Department and IUPUI - Polis

Meeting Date: 07/31/2013

Meeting Time: 11:00 AM

Place: Vermilion County EMA, 2507 Georgetown Road, Danville, IL 61832

Planning Team/Attendance: 14

**Determining Hazard Mitigation Strategies**

The meeting was called to order.

Elizabeth Ellison began by explaining that the meeting would cover mitigation strategies that the planning team believed would prevent or eliminate the loss of life and property. She explained that the planning team should not make any reservations in the form of money or resources when developing this list. Elizabeth directed the planning team to be specific about the location or focus area of a strategy whenever possible. The planning team listed at least two new or current on-going mitigation strategies for each hazard addressed in the plan. The planning team then prioritized mitigation actions. A rating of high, medium, or low was assessed for each mitigation item.

Elizabeth thanked everyone for attending the meeting and stated that if the planning team members needed extra mitigation strategy handbooks that they were available upon request.

**Multi-Hazard Mitigation Planning Meeting Attendance**

Meeting 4 -

Please print clearly

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
EMA	Michele Rice	MR	Emergency Planning & Response Coord.	michele@ema.org 217-431-2442 ext 410
ICMA	Yeo Fisher	YF		
ICMA	Melissa Rome	MR		
ICMA	Gary Weinard	GW	County Director	
ICMA	Dorothy Engelmann	DE	CLERK	217-543-2477
KIR CORP	CHRIS OSTMAN	CO	HESS MAINTENANCE	217-213-1790
ICMA	Matt Bell Valerian	MB	Manager of the Grain	217-344-8888
ICMA	Dorothy Hottelinger	DH	Dist. #5 Rep.	217-344-1380
ICMA	Thomas Cooney	TC	Union Park District	217-344-6477
GFPD	Brad Hayes	BH	Georgetown F.D.	217-474-7544
EMA		MR	Office Manager	217-443-6010

Multi-Hazard Mitigation Planning Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)		
ARC Village of Elmhurst	Kelly M. Fencso	KF	Branch Manager / Red Cross	kelly.fencso@redcross.org Elmhurst Village @emhust.net	(217) 351-5861 x 7341 (217) 359-4255	
Danville Tenn	Scott Eisenhauer Daniel Smith	SE DS	City of Danville Regional Coordinator	scott@danville.org dan.smith@emhust.net	217-481-2400 217-318-3555	

## Vermilion County Multi-Hazard Mitigation Plan Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Danville	Anderson, Jill		Emergency Mayor	jill.anderson@ra.gov 217-554-4592
Hoopeston	Cruisberry, Bill	<i>BC</i>	Mayor	
ARC	Davis, Jamie			217-431-5600
Danville	Eisenhauer, Scott		Mayor	mayor@cityofdanville.org 217-431-2400
Fithian	Engelman, Dorothy	<i>DE</i>	County Clerk	<i>dorothy.engelman@co.fithian.il.us 217-548-2497-2578</i>
Edgar County	Fidler, Duane		ESDA Coordinator	
Vermilion County	Fisher, Ted		EMA Director	
Vermilion County	Fornoso, Kelly		Manager, American Red Cross	Kelly.fornoso@redcross.org 217-351-5861 x 7341
Indianola	Gooch, Thomas		Mayor	ThomasGoochIII@yahoo.com 217-304-6489
	Goodwin, John		Trustee, Village of Ridge Farm	ednoa53@comcast.net 217-554-6000
	Haase, Eric	<i>EH</i>	Chief of Police	rfpd68@hotmail.com 217-918-1173

Meeting 4 (Redo) – January 29, 2014

Page 1

**IEMA Multi-Hazard Mitigation Plan**

Assembly of the Vermilion County Planning Team Meeting 4 Part 2:  
Plan Directors: SIUC Geology Department and IUPUI – Polis

Meeting Date: 01/29/2014

Meeting Time: 2:00 PM and 6:00 PM

Place: Vermilion County Annex, 6 North Vermilion Street, Danville, IL

Planning Team/Attendance: 32

**Determining Hazard Mitigation Strategies**

Two separate meeting, 2 pm and 6 pm, were held to accommodate the planning team's schedules.

The meeting was called to order.

Amanda Damptz began by explaining that the meeting would cover mitigation strategies that the planning team believed would prevent or eliminate the loss of life and property. She explained that the planning team should not make any reservations in the form of money or resources when developing this list. Amanda directed the planning team to be specific about the location or focus area of a strategy whenever possible. The planning team listed at least two new or current on-going mitigation strategies for each hazard addressed in the plan. The planning team then prioritized mitigation actions. A rating of high, medium, or low was assessed for each mitigation item.

Amanda thanked everyone for attending the meeting and stated that if the planning team members needed extra mitigation strategy handbooks that they were available upon request.



## Vermilion County Multi-Hazard Mitigation Plan Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)	
Danville	Pruitt, Tom		Assistant Fire Chief	l.pruitt@cityofdanville.org	217-748-6900
Vermilion County	Prunkard, Barb	BP	EMA Tech	ema3@dcvccema.org	217-443-6010
Sidell	Prunkard, Bradley J.		Board Member, Village of Sidell		217-474-1711
Vermilion County	Rice, Michele		Office Manager, EMA	ema4@dcvccema.org	217-443-6010
Catlin	Robinson, Jim		Mayor	jrobinson@fmh.com	217-369-0322
Vermilion County	Rome, Melissa		Emergency Planning & Response Coordinator	mrome@vchd.org	217-431-2662
	Sherer, Terrie		Administrative Assistant, Vermilion County	tmurr@vercountv.org	217-554-6002
Ridge Farm	Simmons, Sharon	SR	Village President	villageofridgefarm@gmail.com	217-247-2239; 217-918-1200
IEMA	Smith, Daniel		Regional Coordinator	Dan.smith@illinois.gov	217-218-3533
Hoopeston	Strawser, Scott	SS	EMA		

Meeting 4 (Redo) - January 29, 2014

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## Vermilion County Multi-Hazard Mitigation Plan Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)	
Hoopeston	Hardcastle, Bard		EMA		
Georgetown	Hayes, Brad		Fire Chief	chief10d@gmail.com	217-474-7549
Vermilion County	Hicks, Shirley		Public Health Administrator	shicks@vchd.org	217-431-2662
Oakwood	Hume, Terry		EMS Chief		217-354-2479
Oakwood	Jennings, Bob		Village President	oakwood-village@comcast.net	217-354-4255
Bismarck	Lewis, Greg	PL	Mayor	gkewis55a@gmail.com	217-504-6998
Georgetown	Lucas, Dennis		Mayor		217-662-2525
Vermilion County	McMahon, James		County Board Chairman	jmcMahon@vercountv.org	217-554-6000
Vermilion County	Nightingale, Corkey		County Board Dist. 15	Orickn34@yahoo.com	217-369-1380
KIK Corp	Outman, Chris		Hess Manager	coutman@kikcorp.com	217-213-1790
	Prillman, Terry		Rossville Mayor	mayor@villageofrossville.org	217-748-6900

Meeting 4 (Redo) - January 29, 2014

Page 2

## Vermilion County Multi-Hazard Mitigation Plan Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Vermilion County	Eric Talbot	BT	Network Tech Vermilion Co Director 73/EMM	talbot@vercountyny
Vermilion County	Joe Fisk	TF	ASST DIR TSC/EMA	tfisk@vercountny.org
Vermilion County	Karen Russ	KR	Adm. Asst Office Mgr	KarenR@vercountny.org
Vermilion County	Torrie Shaver	TS	Board Chair	
Vermilion County	Gary Barnes	GB		
Village of Ford	Andrea Miller	AM	Vice President/Asst Mayor Deputy A Ph. (U. 10)	andrea.miller@openchanenergy.com
City of Hopeville	Cliff Campbell	CC	Chief Fire	Ccampbell@openchanenergy.com
City of Hopeville	Joe & Jim	JS	Asst Chief	217-245-9620 joe.sir@openchanenergy.com
Western Fire	Greg Weigher	GW	Chief	217-304-1969 greg@openchanenergy.com
Small Fire	Lin Bates	LB	EMS Dist Coordinator	217-417-1441 217-918-1243 linbates@openchanenergy.com

Meeting - (Redo) - January 29, 2014

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## Vermilion County Multi-Hazard Mitigation Plan Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Belgium	Valonger, Mitchell		Mayor	217-304-8888
Vermilion County	Weinard, Gary		Vermilion County	
Vermilion County	Wood, Dennis		Captain, Sheriff's Department	dwood@vermillionsheriff.org 217-474-4003
Rankin Fire District	Dick, Shane		District Chief	dick.s.121@vercountny.com 217-304-1920 (private)
Vermilion County	Halvin, Tim		EMS Manager Dane County, WI	thalvin@openchanenergy.com 217-918-1244
Elmwood	Lisa Powell	LP	Board Trustee	powell10718@openchanenergy.com 217-545-2403
Vermilion County	Matt Winkler		Operations Manager Cherokee Ridge	matt.winkler@openchanenergy.com (217) 545-5720
Westville	Mike Wiese	MW	Mayor	m.wiese@openchanenergy.com 217-304-5582
Westville	Mark Amos II	MA	Chief	markamosii@openchanenergy.com 217-304-5577
Westville	Alan Thomas	AT	Chief	at5502@openchanenergy.com 217-918-1243
Donville Dist No 118	Molly Starnis	MS	Special Ed. Teacher	starnism@openchanenergy.com 217-918-1243

Meeting - (Redo) - January 29, 2014

Page 4



Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
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Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
MUNICIPAL	HELEN WELCH	HW	CLERK	HELEN45@MY.COM 217-744-5327
Municipal	MADEIRA SCARD	MS	WARD	217 304 7099
Municipal	CHERRY WILKES	CW	TRUSTEE	217-778-4426
CHILIN	JOHN PERRY	JP	Super visor	217- 427-3573
Sidell	TERRY BATES	TB	Asst Chief	TBates2000@yahoo.com 217-918-1052

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**IEMA Multi-Hazard Mitigation Plan**  
Assembly of the Vermilion County Planning Team Meeting 5

**Meeting Date:** March 17, 2014

**Meeting Time:** 10:00AM

**Place:** Vermilion County EMA Office, 2507 Georgetown Road, Danville, IL

**Planning Team/Attendance:** 16 – Sheets Attached

**MHMP Draft Review**

Barb Prunkard from Vermilion County EMA thanked everyone for attending and participating in the building of the Mitigation Plan for Vermilion County. The purpose of the meeting was explained and noted the time spend building this plan has been 2 years in the making, as there were some people who had not attended any previous meetings.

The draft of the plan and the correction form was given to all in attendance and asked to read plan and make needed corrections on the correction forms provided. Dan Smith from IEMA explained how some projects in other counties had been funded by FEMA grants and explained it is a 75% to 25% funding.

The plan was looked over and a few questions were asked. Dan Smith from IEMA acknowledged missing info, such as fire ratings and school participation. Barb noted to him she had taken proposal to the schools and was turned down for participation. Tilton Mayor asked about city ordinances being added into plan, Barb confirmed these ordinances needed to be added.

Barb told participants they were allowed to take the draft of the plan and return corrections to Barb by Monday, March 24, 2014. SIU will submit the plan and crosswalk by March 28, 2014. FEMA will review plan which is expected to take 1.5 to 2 months. Adoption will be placed on County Board Meeting Agenda in May or first of June. Vermilion County and participating jurisdictions will adopt the plan by June 30, 2014.

**Multi-Hazard Mitigation Planning Meeting Attendance**

Meeting 5 - March 17, 2014

Please print clearly

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
VEEMA	TED FISHER	TF	VEEMA DIRECTOR	
IEMA	Dan Smith	DS	Regional Coordinator	
SIDEL	Trigg Myler	TM	Trustee	
VEEMA	Mikele Rice	MR	Office Manager	
WESTVILLE	Michael Weese	MW	Mayor WESTVILLE	
VA	Phil Anderson	PA	Emergency Manager	
OKLAHOMA	Bob Jennings	RJ	Village President	
Ridge Farm	Sharon Simmons	SS	Village President	
Geese from	Eric Hara	EH	Chief of Police	
IEMA	Iris Ducey	ID	Planner/Technician	

Multi-Hazard Mitigation Planning Meeting Attendance

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)	
Boonville	Corey Lewis	K	Mayor	217-824-6998	klewis55@gmail.com
Kenilworth	Bill Duvall	BD	SAR/County Board	217-554-6000	bdv@hve@vermont.az
Vermilion City	Melissa Rome	MR	CE/VCAD	217-431-2062	Mrome@vermont.org
Vermilion City	David A. Gill	DD	MANA		
Vermilion County EMA	Bob Frankard	BF	EMA Tech	217-493-6013	ema3ed@vermont.org
Fishers	Dorothy Engelman			217-518-2578	

**VCEMA and VCHD Joint Preparedness Meeting  
November 7<sup>th</sup>, 2013**

**Meeting Minutes**

**Present:** Jill Anderson – VA; Sarah Brown – Aunt Martha's; Alan Copas – Presence; Jamie Davis – American Red Cross; Peggy Johnson – VC Coroner; Greg Lewis – Village of Bismarck; Lynne Reagan – IDPH; Mike Rortvedt – Rortvedt Funeral Services; Molly Stanis – District #118; Charlotte Strawser – Carle Hoopeson; Iris Ducey – IEMA; Dan Smith – IEMA; Tim Compton – Presence; Gary Wright – Westville Fire

**Agenda Item: General Agency Announcements**

Melissa discussed recent upgrades to Emergency Operations Plan and SNS plan for Vermilion County Health Department. Talked about the CEMP which is an internet cloud that holds the county's plans and can be accessed by those authorized through the health department. Multiple changes will be occurring with this program and she would like to offer the opportunity to partner agencies to have access.

Barb Prunkard talked about the Mitigation Plan with VCEMA. She talked about the importance of communities being involved to qualify for mitigation funds. She also passed out a strategy form to be filled out by the communities to return to her for the next mitigation meeting.

Mike Rortvedt with Rortvedt Funeral Services presented on Fatality Management and his involvement with the Indiana Mortuary Emergency Response Team and the DMORT Region 5 Team. The presentations included the Indiana Mortuary Emergency Response Team Training in Indianapolis in September, 2013 and the DMORT Region 5 Team in August, 2013 in Albuquerque, NM.

**Meeting was adjourned at approximately 10:45**

*If there is anything that needs to be in the minutes that were left out, please email Melissa Rome at mrome@vchd.org. Thank you!*

Meeting Minutes: Melissa Rome

**11/7/2013 Meeting**

Name	Agency	Email	Signature
Don	City of Danville	doherty@cityofdanville.com	
John	Vermilion County	johansen@danvilleymca.org	
Heik and Deann	Central Christian	deann@ccdcn.org	
Jill	VA Illine Health Care System	jill.anderson@va.gov	
Jim	Presence Health USMC Foundation	jim.anderson@presencehealth.org	
Anderson	Board of Health	jeasat@dec.edu	
Ed	Vermilion County	edwin@vchd.org	
David	Paulsch Printing	prepress@paulschprinting.com	
Lea	Danville Mass Transit	leah@cityofdanville.org	
Al	Danville Area Community College	al@dec.edu	
Matt	Wolfe Burton Funeral Home	matt@wolfeburtonfuneralhome.com	
Linda	Vermilion Advantage	ljohnson@vermillionadvantage.com	
Robert	Vermilion County	mbowling@yahoo.com	
Carly	Carle Clinic	Carly.Brazelton@carle.com	
Randy	Vermilion County Courthouse	rphillips@vermilioncounty.org	
Keen	Board of Health	keven.brazelton@carle.com	
Mike T.	Danville Family YMCA	mbrown@danvilleymca.org	
Sarah	Aunt Martha's Health Clinic	skron@aurtmarthas.org	
Mike	Presence Health	michael.brown@presencehealth.org	
Frank	WorkSource	frank@worksource.org	
Dr. Jane	Board of Health	djohnson700@aol.com	
Alan	Presence Health USMC	alan.copas@presencehealth.org	
John	Vermilion County	denned11@hotmail.com	
Bill	City of Hoopeson	myonhoopeson@yahoo.com	
John	Cushberry		
Rich	Village of Alorton		
Jamie	Sunset Funeral Homes	Jamie.Davis@redcross.org	
Larry	American Red Cross - Vermilion County Chapter	larry@vermilioncounty.org	
Carla	Vermilion County	cdangels@rednet.net	
Mark	Board of Health	mdeanna@danville.k12.il.us	
Lori	Danville District #118	lori.doyoung@yahoo.com	
Mike	Board of Health	michael.jodges@att.net	
Bill	Vermilion County	bdonahue@vermilioncounty.org	
Donna	Vermilion County Courthouse	johnidnr22@aol.com	
Dierker	Vermilion County		

11/11/2013

Michael	Norton	Vermilion County	miken1973356@yahoo.com
Bernard	McCarty	Village of Padonac	bmccarty60@gmail.com
Jane	McFadden	Danville Police Department	jmcfadden@danvillead.org
Jim	McMahon	Vermilion County	jmcmahon@vercounty.org
Drew	Meister	Second Church of Christ	drew@secondchurchofcrist.org
John	Mezinger	Danville Mass Transit	jmeznzinger@cityofdanville.org
Ed	Michals	Center for Children's Services	edmichals@ccs.org
Pastor Tommy	Miller	New Life Church of Faith	pastortom@newlifechurchoffaith.org
Susan	Miller	Presence Health	susan.miller@presencehealth.org
Dennis	Miller	Vermilion County	miller107@gmail.com
Charles	Moddoss III	Vermilion County	cmmoddoss3@aol.net
Jeanne	Mukewey	United Way	jeanne.mukewey@unitedwaydc.com
Fr. Greg	Nelson	St. Paul's Catholic Church	glynne@gmail.com
Charles	Nesbitt	Vermilion County	nesbitt57@gmail.com
Holly	Nicholson	Presence Health	molly.nicholson@presencehealth.org
Orick	Nightlinger	Vermilion County	orick034@yahoo.com
Holly	Norton	Danville District #118	hnorton@danville.k12.il.us
Donald	Oakley	City of Steel	coaborn@lakeviewcol.edu
Christy	Osborn	Lakeview College of Nursing	dantest1963@aol.net
Connie	Ozander	Board of Health	dpillips@dan.com
Jerry	Paxon	Village of Henning	
David	Phillips	City of Tilton	
Pam	Pura	Danville Healthcare Surgery Center	
Thom	Pollock	Crosspoint	tpollock@crosspointhumanseervices.org
Thomas	Pollock	YTRC	tpollock@crosspointhumanseervices.org
Lisa	Powell	Village of Fulton	powell1077@comcast.net
Fr. Ted	Prez	Holy Family Catholic Church	
Barb	Punkard	Vermilion County Emergency Management	ema@dvccma.org
Richard	Queen	City of Roselle	
Lynne	Reagan	IDPH	lynnereagan@usgs.gov
Cheryl	Reitsack	Regional Office of Education	creitsack@roed5.k12.il.us
R. Whitney	Renaker	Georgetown Police Department	gwpmpd@gmail.com
Michelle	Rice	Vermilion County Emergency Management	ema3@dvccma.org
Matthew	Richardson	Presence Health USMC	matthew.richardson@presencehealth.org

Bob Punkard

11/11/2013

Mark	Drellinger	Hoopston Police Department	chief@hoopstonpolice.org
Melissa	Edington	Danville Polyclinic	medlmgan@polyclinic.com
Scott	Ellenbauer	City of Danville	scotthelmer@cityofdanville.org
Sheri	Ervin	Presence Health	sherlervin@presencehealth.org
David	Ferber	City of Fairmount	dave.ferber@comcast.net
Ted	Fisher	Vermilion County Emergency Management	ted@vercoms.org
Twaddle	Foster	Vermilion County	twaddlerite@scqglobal.net
Robert	Fox	Vermilion County	appleghorn@christclinc.com
Mike	Frederis	52nd District, State of Illinois	kagolive@gmail.com
Alan	Gleghorn	Chetle Clinic	amla.gulley@carle.com
Thomas	Gooch	Village of Indianapolis	
Kevin	Green	Vermilion County	
Antia	Gulley	Carle Foundation Hospital	
Steve	Guick	Illiana Medical Equipment and Supply	
John	Harrison	City of Ribban	
Pak	Harrison	Vermilion County Sheriff's Department	pharrison@vermillionsheriff.org
Vodd	Haugen	Vermilion Advantage	vhaugen@vermillionadvantage.org
Chad	Hays	State Representative	
Leslie	Henry	Presence Health	leslie.henry@presencehealth.org
Greg	Hillery	Danville Housing Authority	gillery@dhad-hud.com
Rev. Jimmy	Hopper	First Presbyterian Church	revjim.hop@scqglobal.net
Dr. Alice	Jacobs	Danville Area Community College	amjacobs@dac.edu
Mark	Janesky	Regional Office of Education	mjanesty@roed5.k12.il.us
Cathy	Jenkins	Vermilion County	planojenny52@yahoo.com
Bob	Jennings	City of Oakwood	jennings1943@yahoo.com
Peggy	Johnson	Vermilion County	coroner@vercounty.org
Todd	Johnson	Vermilion County	toddjohnson0@icloud.com
Bob	Jones	Board of Health	bobjcd@yahoo.com
Dr. Joseph	Kanathu	Vermilion County	JK4852@aol.com
Rick	Knight	Leak and Sons Funeral Home	RK9aintams@yahoo.com
Tim	Leak	Vermilion County	
Chris	Leigh	Village of Aftn	chrisleigh1@hotmail.com
Jean	Lele	Village of Burnick	
Greg	Lewis	Carle Hoopston Regional Health Center	glewis55@gmail.com
Kim	Longfellow	East Central IL Community Action Agency	kim.longfellow@carle.com
Dwight	Lucas	CRTS Senior Services	dlucas@comaction.org
Amy	Merchant		pace@vermillionsevents.com

Dr. Alice Johnson

My K. Lele

11/1/2015			
Bruce	Ricketts	Provena Regional EMS	bruce.ricketts@provenahealth.org
Pastor Randall	Robinson	St. James Methodist Church	rrandall@coconet.net
Jim	Robinson	City of Collins	willgott@collins.net
Mike	Rortved	Rortved Funeral Services	m.rortved@yahoo.com
Steve	Rortved	Danville District #118	mrortved@yahoo.com
Ideahim	Rumyan	708 Mental Health Board	ideahim@yahoo.com
F. Key	Sandeler	VA Illiana Health Care System	keyf@va.gov
Aissa	Sanders	St. Mary's Catholic Church	aissa.sandeler@va.gov
F. Timothy	Saupe	City of Ridge Farm	stimmone1945@yahoo.com
Sharon	Simmons	City of Ridge Farm	sharon1945@yahoo.com
Carroll	Slade	City of Muncie	carroll@carrie.com
Jim	Snider	Care Clinic-Danville	jim.snider@carrie.com
Steve	Sparrow	Medix	steve@vermont.net
Terry	Stal	Vermilion County	terry@vermont.net
Molly	Stans	District #118	molly@vermont.net
Bruce	Stark	Vermilion County	bruce@vermont.net
Doug	Spake	Vermilion County	doug@vermont.net
David	Stone	Vermilion County	david@vermont.net
Scott	Strawser	Hopkinton EMA	scott@vermont.net
Charlotte	Strawser	Care Hopkinton Regional Health Center	charlotte@vermont.net
Larry	Thompson	Danville Police and Fire Department	larry@vermont.net
Daniel	Valerion	City of Belgium	daniel@vermont.net
Eugene	Walls, Sr.	Vermilion County	eugene@vermont.net
Aaron	Warner	McFerrer Park	aaron@vermont.net
Michael	Weese	City of Westville	michael@vermont.net
Gary	Wentard	Vermilion County	gary@vermont.net
Karla	Wilson	Vermilion County	karla@vermont.net
Dennis	Wood	Vermilion County Sheriff's Department	dennis@vermont.net
Bill	Wright	Vermilion County	bill@vermont.net
Erin	Ducey	EMA	erin@vermont.net
Don	Snider	EMA	don@vermont.net
Tim	Compton	Provena Regional EMS	tim@vermont.net
Carol	Compton	Westville Fire Dept	carol@vermont.net

here

Molly Strawser - returned

Carol Strawser - went wrong thing

Timothy Compton Provena Regional EMS  
Carol Strawser Westville Fire Dept



3-18-14 Workshop for Corrections to Migration Draft Plan Ent 8:44 1:31 PM  
Multi-Hazard Mitigation Planning Meeting Attendance 2 hours

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Indianola	Suzette Carpenter	SC	Village Clerk	217-384-2131
Ridge Farm City of Danville	Eric Haase	EH	Chief Police	217-918-1173
Hoopeston	Marta Pierce	MP	Superintendent	217-431-2304
Fairmount	Gary Wright	GW	Clerk	217-283-5833
Catlin	Shelley Darrell	SD	Fairmount Police	217-497-1146
Muncie	Helen Welch	HW	Village Clerk	217-487-2131
VC EMA	Barb Prunkard	BP	EMA Tech	217-794-5229
				217-443-6010

Barb met with Dorothy Engelman from Fitch on 3/20/14 - (hr.) to answer questions, Barb met with Helen Welch and Eric Haase on 3/21/14 1hr. Complete & Submit Corrections

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### VCEMA MHMP Correction Workshop

March 18<sup>th</sup>, 2014 at 1pm

#### Meeting Minutes

**Present:** Suzette Carpenter – Indianola; Eric Haase – Ridge Farm; Theresa Brazetor – Danville; Marta Pierce – Hoopeston; Gary Wright – Fairmount; Shelley Darrell – Catlin; Helen Welch – Muncie; Barb Prunkard – VC EMA

#### Agenda Item: Multi-Hazard Mitigation Plan Workshop

A workshop was held with various planning team members. Each attendee was given a copy of Vermilion County's Multi-Hazard Migration Plan and County Correction Form. Any should be noted in the County Correction Form. These changes will be sent back to SIU.

Meeting was adjourned at 3pm



## Appendix B. Local Newspaper Articles

### PUBLIC NOTICES

#### PUBLIC MEETING ON VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN

The Vermilion County Multi-Hazard Mitigation Steering Committee will host a public information and strategy planning session at 2:00 p.m. and a later one beginning at 6:00 p.m. on 1/29/2014 at Vermilion County Annex 2nd floor meeting room, located at 6 Vermilion Street, Danville, IL. Through a grant, Vermilion County EMA has formed an alliance with Southern Illinois University-Carbondale (SIUC) and the Polis Center of Indiana University-Purdue University Indianapolis (IUPUI) to identify potential natural hazards and to produce a mitigation plan to address the issues. The ongoing efforts of the partnership will result in a Multi-Hazard Mitigation Plan (MHMP), which will seek to identify potential natural hazards for Vermilion County, and then establish mitigation measures that are intended to reduce or eliminate the negative impact that a particular hazard may have on the locality.

Over the last several months the planning team has been working with staff from the SIUC Department to develop a Multi-Hazard Mitigation Plan (MHMP) for the county to submit to the Federal Emergency Management Agency for approval.

The Federal Emergency Management Agency (FEMA) now requires each unit of government in the United States to have a FEMA-approved MHMP, so completion of the Vermilion County plan is critical. The MHMP's will serve as framework for developing hazard mitigation projects that will reduce the negative impacts of future disasters on the communities and unincorporated areas of the county. Examples of projects that have been completed by some communities include storm shelters, warning sirens, flood walls, and fire protection enhancements.

The planning team has identified the following hazards: Flooding, Tornado, Thunderstorms, Winter Storms, Hazardous Materials Release, Extreme Drought or Heat, Earthquakes, Fire, and Subsidence. The planning team then selected hazards for SIUC to model with Hazus-MH, a GIS-based risk mitigation tool developed by FEMA. Hazus-MH is capable of predicting the probable impacts of specific disasters in terms of financial, human life, and safety impacts, as well as various others.

Once the plan is completed, the planning team will submit it to FEMA for approval. The planning team will also work to develop funding for any mitigation activities that are identified.

The public is invited to attend the 1/29/2014 meeting and the planning team is interested in receiving public input on the plan.

For more information about the Multi-Hazard (Pre-Disaster) Mitigation Plan, please see <http://www.state.il.us/iema/planning/planning.htm>

### CERTIFICATE of PUBLICATION

STATE OF ILLINOIS }  
VERMILION COUNTY } ss.

This is to Certify that a notice, a true copy of which is hereto attached, was published in The Sidell Reporter, a secular newspaper of general circulation in Sidell, in the County of Vermilion and the State of Illinois, by The Sidell Reporter, a newspaper existing under the laws of said state, and that said notice was published on:

January 16, 2014

And this is to Further Certify that The Sidell Reporter has been regularly published for 50 weeks prior to the publication of said notice therein, and that the person who signs the name of said company to this certificate is as appears by the records of said company, its duly authorized agent for such purpose.

Dated: January 16, 2014

*Amanda M. Ruel*  
Authorized Agent For  
The Sidell Reporter

**Appendix C. Adopting Resolutions****Resolution #\_\_\_\_\_****ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, Vermilion County recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, Vermilion County participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that Vermilion County hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
County Board Chairman

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County Board Member

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County Board Member

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County Board Member

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County Board Member

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Attested by: County Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Allerton recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Allerton participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Allerton hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution #**\_\_\_\_\_

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Alvin recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Alvin participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Alvin hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Belgium recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Belgium participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Belgium hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Bismark recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Bismark participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Bismark hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Catlin recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Catlin participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Catlin hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk



**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the City of Danville recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the City of Danville participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City of Danville hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
City Board Chairman

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City Board Member

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City Board Member

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City Board Member

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City Board Member

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Attested by: City Clerk

**Resolution #**\_\_\_\_\_

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Fairmount recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Fairmount participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Fairmount hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Fithian recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Fithian participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Faithian hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the City of Georgetown recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the City of Georgetown participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City of Georgetown hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
City Board Chairman

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City Board Member

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City Board Member

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City Board Member

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City Board Member

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Attested by: City Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Henning recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Henning participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Henning hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the City of Hoopeston recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the City of Hoopeston participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City of Hoopeston hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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City Board Chairman

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City Board Member

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City Board Member

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City Board Member

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City Board Member

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Attested by: City Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Indianola recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Indianola participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Indianola hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Muncie recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Muncie participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Muncie hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk



**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Oakwood recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Oakwood participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Oakwood hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Potomac recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Potomac participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Potomac hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Rankin recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Rankin participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Rankin hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

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Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Ridge Farm recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Ridge Farm participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Ridge Farm hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Rossville recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Rossville participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Rossville hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Sidell recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Sidell participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Sidell hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Tilton recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Tilton participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Tilton hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Village President

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Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk

**Resolution # \_\_\_\_\_**

**ADOPTING THE VERMILION COUNTY MULTI-HAZARD MITIGATION PLAN**

WHEREAS, the Village of Westville recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Westville participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Westville hereby adopts the Vermilion County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Vermilion County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS \_\_\_\_\_ Day of \_\_\_\_\_, 2014.

\_\_\_\_\_  
Village President

\_\_\_\_\_  
Village Council Member

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Village Council Member

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Village Council Member

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Village Council Member

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Attested by: Village Clerk



## **Appendix D. Historical Hazards Map**

*See Attached Large-Format Map*

## **Appendix E. List of Critical Facilities**

*Not all data is available for every facility. Other facility specifics may be available upon request.*

<b>Structure Type</b>	<b>Facility Name</b>	<b>Address</b>	<b>City</b>	<b>Replac ement Cost (In \$1000)</b>	<b>Comments (Depends On The Facility As To How The Comments Are Structured)</b>	<b>Owner</b>
Airport	Vermilion County		Danville	10651		
Bus Facility	Danville Mass Transit	101 N Jackson St	Danville	1209		
Dams	Georgetown Dam				Little Vermillion River	City Of Georgetown
Dams	Illinois Power Company Lake Dam				Vermillion River	Illinois Power Company
Dams	Ip/Vermilion Sta/Fly Ash Disposal Pond D				Middle Fork Vermilion River	Illinois Power Company
Dams	Lake Mingo Dam				Windfall Creek	Vermilion County Conserva
Dams	Lake Vermilion Dam				North Fork Vermilion River	Consumers Illinois Water
Dams	Marvin Puzey Lake Dam				Salt Fork	Marvin Puzey
Dams	Timberlake Farms Lake Dam				Trib Salt Fork River	C. T. Jackson
Dams	Windfall Lake Dam				Windfall Creek	Indian Springs Farms, Inc
Electric Power	Illinois Power Company Vermillion Power	10188 East 2150 North Road	Oakwood	122100		
EOC	Carle Clinic	311 W. Fairchild Street	Danville			
EOC	Danville Emergency Svc	2 E South St	Danville	1110		
EOC	Danville Polyclinic	707 N. Logan Ave.	Danville			
Fire Station	Allertown Fire Protection District	834 Chicago St	Allerton			
Fire Station	Bismarck Community Fire Protection Distr	106 E Halloway	Bismarck			
Fire Station	Bismarck Community Fpd	2 E. Wood Street	Alvin			
Fire Station	Bismarck Community Fpd	208 W. Lake Blvd	Danville			
Fire Station	Bismarck Fpd	5 N. Main Street	Henning			
Fire Station	Bluegrass Fire Protection District	100 Burke St	Potomac			
Fire Station	Carroll Township Fpd	4 E. North Street	Indianola			
Fire Station	Catlin Fire Protection District	105 E Davis St	Catlin			

<b>Structure Type</b>	<b>Facility Name</b>	<b>Address</b>	<b>City</b>	<b>Replac ement Cost (In \$1000)</b>	<b>Comments (Depends On The Facility As To How The Comments Are Structured)</b>	<b>Owner</b>
Fire Station	Danville Fire Department #1	301 W. Seminary St	Danville			
Fire Station	Danville Fire Department #2	2129 N. Vermilion St	Danville			
Fire Station	Danville Fire Department #3	1111 N Griffin St	Danville			
Fire Station	Danville Fire Department #4	1711 E. Main Street	Danville			
Fire Station	Fairmount Fire Department	215 S Main St	Fairmount			
Fire Station	Fithian-Muncie-Collison Fpd	108 N Adams St	Fithian			
Fire Station	Georgetown Fire Protection District	211 S Main	Georgetown			
Fire Station	Hoopeston Fire Department #1	110 N. Market Street	Hoopeston			
Fire Station	Hoopeston Fire Department #2	425 W. Main Street	Hoopeston			
Fire Station	Kickapoo Fpd	1717 Oakwood Avenue	Danville			
Fire Station	Kickapoo Fpd	21981 N. 1400 East Road	Danville			
Fire Station	Lynch Area Fpd	2315 Perrysville Rd	Danville			
Fire Station	Lynch Fpd	334 E. 14th Street	Danville			
Fire Station	Oakwood Fire Protection District	527 S Oakwood St	Oakwood			
Fire Station	Rankin Fire Protection District	108 W Third Ave	Rankin			
Fire Station	Rankin Fpd	41501 Main Street	East Lynn			
Fire Station	Ridge Farm Fire Protection District	16 W Woodward Ave	Ridge Farm	300	Steel Structure	Fire District
Fire Station	Rossville Fpd	617 N. Chicago Street	Rossville			
Fire Station	Sidell Fire & Rescue	101 N Chicago	Sidell			
Fire Station	Tilton Fire And Ambulance #1	201 West 5th St	Tilton			
Fire Station	Tilton Fire And Ambulance #2	1819 S. Jefferson Street	Tilton			
Fire Station	Westville Area Fire Protection District	119 W Williams St	Westville			
Police Station	Belgium Pd	22 Orlea Street	Belgium			

<b>Structure Type</b>	<b>Facility Name</b>	<b>Address</b>	<b>City</b>	<b>Replacement Cost (In \$1000)</b>	<b>Comments (Depends On The Facility As To How The Comments Are Structured)</b>	<b>Owner</b>
Police Station	Catlin Pd	109 S. Sandusky Street	Catlin			
Police Station	Danville Police Dept	2 E South St	Danville	1554		
Police Station	Fairmount Pd	301 S. Main Street	Fairmount			
Police Station	Fithian Pd	102 N. Main Street	Fithian			
Police Station	Georgetown Police Dept	200 S Main St	Georgetown	1554		
Police Station	Henning Pd	1 S. Main Street	Henning			
Police Station	Hoopeston Police Dept	301 W Main St	Hoopeston	1554		
Police Station	Indianola Pd		Indianola			
Police Station	Oakwood Pd	106 S. Scott Street	Oakwood			
Police Station	Potomac Pd	310 W. State Street	Potomac			
Police Station	Rankin Pd	116 S. Main Street	Rankin			
Police Station	Ridge Farm Police Dept	15 W Woodyard Ave	Ridge Farm	1554		Village of Ridge Farm
Police Station	Rossville Pd	120 E. Attica Street	Rossville			
Police Station	Sidell Pd	209 Market Street	Sidell			
Police Station	Tilton Pd	1001 Tilton Road	Tilton			
Police Station	Westville Pd	200 Washington Street	Westville			
Potable Water	Allerton Wtp	Corner Of Yates & Chicago	Allerton	36963		
Potable Water	Alvin Wtp	Village Hall	Alvin	36963		
Potable Water	Bismarck Community Water Dist	P.O. Box 192	Bismarck	36963		
Potable Water	Danville Water Treatment Plant	1300 West Fairchild Street	Danville	36963		
Potable Water	East Lynn Comm Water System	North Elm Street	East Lynn	36963		
Potable Water	Fairmount Wtp	Township Road	Fairmount	36963		
Potable Water	Georgetown Wtp	Old Dam Road	Georgetown	36963		
Potable Water	Ridge Farm Wtp	15181 E 100 N Rd	Ridge Farm	36963		Village of Ridge Farm

<b>Structure Type</b>	<b>Facility Name</b>	<b>Address</b>	<b>City</b>	<b>Replac ement Cost (In \$1000)</b>	<b>Comments (Depends On The Facility As To How The Comments Are Structured)</b>	<b>Owner</b>
Radio Towers	WCCU Ch 27		Urbana	111	Tv	Urbana-Champaign Broadca
Radio Towers	WDAN 1490		Danville	111	Am	Neuhoff Broadcasting - Da
Radio Towers	WDNL Ch 271		Danville	111	F	Neuhoff Broadcasting - Da
Radio Towers	WGNJ Ch 207		St. Joseph	111	Fm	Good News Radio, Inc.
Radio Towers	WHPO Ch 265		Hoopeston	111	Fm	Market Street Broadcastin
Radio Towers	WIAI Ch 256		Danville	111	Fm	I.A.I. Broadcasting, Inc.
Radio Towers	WICD Ch 15		Champaign	111	Tv	Wicd Licensee Llc
Radio Towers	WITY 980		Danville	111	Am	Vermilion Broadcasting Co
Rail Facility	Bulkmatic Transport Company		Danville	2663	Cargo	
Rail Facility	Bunge Lauhoff Grain Co		Danville	2663	Cargo	
Rail Facility	Central States Distribution Service, Inc		Danville	2663	Cargo	
Rail Facility	Demeter, Inc		Hoopeston	2663	Cargo	
School	Armstrong High School	30474 Smith Street	Armstrong	3320		
School	Armstrong-Ellis Elem School	3571 Gifford Avenue	Armstrong	1265		
School	Bismarck-Henning Elem School	5 W. Halloway Street	Bismarck	4425		
School	Bismarck-Henning High School	17268 E. 2750 N. Road	Bismarck	6520		
School	Bismarck-Henning Jr High School	13702 E. 1250 N. Road	Bismarck	4335		
School	Cannon Elem School	1202 E Main St	Danville	3911		
School	Catlin Elem School	216 N Webster	Catlin	6170		
School	Catlin High School	701 W Vermilion	Catlin	2976		
School	Danville Area Community College	2000 E. Main Street	Danville	2116		

<b>Structure Type</b>	<b>Facility Name</b>	<b>Address</b>	<b>City</b>	<b>Replac ement Cost (In \$1000)</b>	<b>Comments (Depends On The Facility As To How The Comments Are Structured)</b>	<b>Owner</b>
School	Danville Christian Academy	428 N Walnut St	Danville	825		
School	Danville High School	202 E Fairchild St	Danville	39541		
School	Danville Lutheran School	1930 North Bowman	Danville	2094		
School	Dist. 118 Alternative School	516 N. Jackson Street	Danville	825		
School	East Park Elementary School	930 Colfax Dr	Danville	15273		
School	Edison Elem School	2101 N Vermilion St	Danville	3978		
School	First Baptist Christian School	1211 N. Vermillon	Danville	2443		
School	Garfield Elem School	1101 N Gilbert St	Danville	4738		
School	Georgetown-Ridge Farm High School	500 W Mulberry St	Georgetown	6434		
School	Holy Family School	502 E Main St	Danville	3067		
School	Honeywell Elem School	600 E Honeywell	Hoopeston	2322		
School	Hoopeston Area High School	615 E Orange St	Hoopeston	6572		
School	Hoopeston Area Middle School	615 E Orange St	Hoopeston	2860		
School	Jamaica Elementary School	7087 N 600 E Rd	Sidell	2617		
School	Jamaica High School	7087 N 600 E Rd	Sidell	2684		
School	Jamaica Jr High School	7087 N 600 E Rd	Sidell	1415		
School	John Greer Elem School	609 W Main	Hoopeston	3173		
School	Judith Giacoma Elem School	200 S Walnut St	Westville	13238		
School	Liberty Elem School	20 E Liberty Ln	Danville	7445		
School	Maple Elem School	500 S 4th	Hoopeston	5320		
School	Mary Miller Junior High School	400 W West St	Georgetown	4394		
School	Meade Park Elem School	200 S Kansas Ave	Danville	7892		
School	Middle Fork School	15009 Catlin-Tilton	Danville	2116		
School	Middlefork School	15009 Catlin Tilton	Danville	2116		
School	Middlefork School Rssp	12190 Us Rte 150	Oakwood	825		
School	North Ridge Middle School	1619 N Jackson St	Danville	16659		
School	Northeast Elem Magnet School	1330 E English St	Danville	5432		
School	Oakwood Grade School	408 S Scott St	Oakwood	12858		

<b>Structure Type</b>	<b>Facility Name</b>	<b>Address</b>	<b>City</b>	<b>Replacement Cost (In \$1000)</b>	<b>Comments (Depends On The Facility As To How The Comments Are Structured)</b>	<b>Owner</b>
School	Oakwood High School	5834 Us Rte 150	Fithian	5333		
School	Oakwood Junior High School	21600 N 900 East Rd	Danville	2654		
School	Pine Crest Elementary School	505 Kennedy Dr	Georgetown	7691		
School	Potomac Elem School	7915 Us Rte 136	Potomac	2248		
School	Rainbow Of Hope	17087 N 1000 East Rd	Oakwood	110		
School	Ridge Farm Elementary School	305 S State St	Ridge Farm	2374		
School	Rossville-Alvin Elem School	350 N Chicago	Rossville	5320		
School	Schlarman High School	2112 North Vermilion	Danville	368		
School	South View Middle School	133 E 9th St	Danville	14604		
School	Southwest Elem School	14794 Catlin Tilton	Danville	8004		
School	St Marys School	225 N State	Westville	1194		
School	St Paul School	1307 N Walnut St	Danville	3613		
School	Weds Regional Program	15009 Catlin Tilton	Danville	2116		
School	Westville High School	918 N State St	Westville	6073		
School	Westville Jr High School	412 Moses Ave	Westville	2890		
Wastewater	Catlin Stp	North Westwood Drive	Catlin	73926		
Wastewater	City Of Hoopeston Water Treatment	425 W. Main	Hoopeston			
Wastewater	Danville Sanitary District	16161 Grape Creek Road	Danville	73926		
Wastewater	Fithian Stp	P.O. Box 235	Fithian	73926		
Wastewater	Georgetown Stp	East Mill Street	Georgetown	73926		
Wastewater	Hoopeston Sewage Treatment Plant	South Sixth Avenue	Hoopeston	73926		
Wastewater	Oakwood Stp	P.O. Box 31	Oakwood	73926		
Wastewater	Potomac Wwtp	East U.S. Route 136	Potomac	73926		
Wastewater	Rankin Stp	North Iroquois Street	Rankin	73926		
Wastewater	Ridge Farm Stp	15270 260 North Road	Ridge Farm	73926		Village of Ridge Farm
Wastewater	Rossville Stp	120 East Attica Street	Rossville	73926		
Wastewater	Tilton Stp	201 West Fifth Street	Tilton	73926		



<b>Structure Type</b>	<b>Facility Name</b>	<b>Address</b>	<b>City</b>	<b>Replac ement Cost (In \$1000)</b>	<b>Comments</b> <i>(Depends On The Facility As To How The Comments Are Structured)</i>	<b>Owner</b>
Wastewater	Village Of Rossville Water Treatment	111 N. Summit	Rossville			
Wastewater	Westville-Belgium Sd Wwtp	Rural Route 4	Belgium	73926		

## **Appendix F. Critical Facilities Map**

*See Attached Large-Format Map*